



CALIFORNIA URBAN WATER AGENCIES

September 22, 1999

Lester Snow, Executive Director
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

CUWA Comments on June 1999 Revised Phase II Document for the CALFED Bay-Delta Program

Dear Lester:

CUWA is pleased to provide you our comments on the June 1999 CALFED Phase II Document. A copy of this letter is being included with our comments on the Revised Draft EIS/EIR for the Program. CUWA is also developing a "needs list" for the development of a CALFED record of decision which we hope to forward to you in October. We've included some highlights below. Our comments are arranged by subject area.

CUWA believes that CALFED needs to develop specific objectives in each program area to provide measurable benchmarks for achieving the overall program goals, improve on its decision-making process, provide assurances critical for securing urban support, and commit to continuous improvement in all program areas by including a balanced list of Stage 1 projects. In particular, CUWA urges CALFED to adopt long-term and intermediate targets for drinking water quality and salinity, and water supply reliability improvement objectives. CALFED needs to adopt a credible evaluation and decision-making process, and provide affected stakeholders formal and equitable representation. Furthermore, CALFED must provide a comprehensive assurance package to water users that includes regulatory and operating assurances by the time of the Record of Decision. We will provide further details of these suggestions in our "needs list".

CUWA has serious concerns that CALFED's commitment to continuous improvement in water quality will be kept. The Water Quality Program Plan notes potential degradation due to wetland restoration efforts. The source control actions do not appear robust enough to offset degradation due to inland population growth. It is unacceptable to CUWA agencies to potentially receive degraded water quality from the Delta as a result of CALFED actions in Stage 1, before CALFED makes future decisions to begin actions that may or may not reverse this trend. CALFED must also incorporate commitments to the CUWA agencies in the Record of Decision (ROD) to meet our water supply reliability and water quality needs that will be described in the CUWA "needs list". These two elements are imperative in the ROD in order to provide adequate

assurances to the CUWA agencies so that we can maintain our continued support of the CALFED Program

CALFED's Fundamental Program Concepts

CALFED's fundamental program concepts, particularly that of the time value of water, are critically important concepts that should be maintained as core drivers of the program.

The Phase II report notes boldly at page 20 that the lack of comprehensive groundwater management in California will limit CALFED's ability to improve water management in the state. Inasmuch as water management is then linked to ecosystem health and water quality, this lack of management can be said to adversely affect the program's ability to achieve positive change in those areas as well. As an outgrowth of the integrated storage investigations (ISI), CALFED should consider conducting workshops which will identify the impediments to better management of water supplies to serve program purposes the lack of groundwater management creates. Identification of these impediments could then become the basis for actions to address the impediments.

Conveyance

CALFED's conveyance program focuses on meeting fishery and drinking water quality objectives. Conveyance may also be critical in executing the Program's water supply reliability strategy of "increasing the utility of available water supplies" due to the ability of conveyance changes to improve source water quality. The conveyance program should note this linkage.

Water Quality Improvement Strategy

The proposed restoration of wetlands through the CALFED Ecosystem Restoration Program (ERP) may increase the total amount of total organic carbon (TOC) at drinking water intakes, increasing the potential to form disinfection by-products (DBP). Changing channel flows and increasing the amount of tidal waters exchanged with the estuary may increase the amount of bromide in Delta waters, significantly increasing DBP formation. CALFED must ensure that Ecosystem Restoration efforts do not preclude continuous improvement in drinking water source quality, that urban water agencies will not receive degraded water quality as a result of CALFED actions in Stage 1., and that CALFED maintain source quality in areas that currently receive high quality source supplies.

The strategy notes that its purposes are for environmental quality and drinking water quality. Salt loads in water diverted from the Delta bear greatly on the ability of water users to increase the utility of available water supplies. Without lowering the salinity of water diverted from the Delta, projected levels of recycling and enhanced conjunctive use will be uneconomical. While recognized in the Environmental Water Quality Improvement actions list stated on page 42, CALFED should consider

segregating water quality actions for improving salinity under a separate heading of "water quality improvements for water management".

CALFED's long term drinking water quality targets are appropriate. CALFED should adopt similarly specific salinity targets linked to water management objectives. These targets can be structured like the drinking water targets in that they can state a numeric objective and an alternative that achieves the water management objective in a cost-effective way. Additionally, CALFED needs to provide an institutional mechanism to assess progress in meeting salinity targets and alternative means of producing enhanced levels of recycling and conjunctive use. CALFED could develop specific salinity targets under Goal A of the water management strategy (Increase the utility of available water supplies) rather than in the Water Quality strategy. Regardless, linkage between water quality improvements on salinity and water management goals should be strengthened.

CALFED notes the need for studies of alternative sources of water (water exchanges) to facilitate drinking water quality improvement. However, the narrative does not indicate responsibility for the analysis or a timeline for addressing the feasibility of specific actions in a way that can aid in adaptive decision making. Responsibility for assessing the potential for exchanges needs to be defined.

CALFED must also adopt intermediate milestones for drinking water parameters such as bromide and TOC. Intermediate milestones are needed to indicate whether CALFED has achieved its stated goal of continuous improvement in water quality during Stage 1 (the first 7 years) and to ensure that urban agencies treating Delta water can comply with drinking water requirements using cost-effective feasible technology. We reiterate our recommendations that these intermediate water quality milestones be based upon those mentioned in our letter to Lester Snow of May 20, 1999. These were a bromide concentration < 300 µg/L and TOC concentration < 4.0 mg/L by 2002 and bromide < 100-150 µg/L and TOC < 3.5 mg/L by 2005. These intermediate milestones would be quarterly (3-month) averages. It is important to adopt intermediate milestones in order to track short term changes in quality against intermediate benchmarks of continuous improvement and assure that improvement takes place versus degradation.

CALFED should provide financial and policy level support for the development of a Drinking Water Protection Policy by the Central Valley Regional Water Quality Control Board, working with the State Water Resources Control Board, Department of Health Services, San Francisco Bay Regional Water Quality Control Board, and the U.S. Environmental Protection Agency. This policy will include the development of water quality objectives for TOC, TDS, bromide and pathogens, and the development of a management plan to meet the objectives. Development of this policy is important for achieving drinking water quality improvement, and should include the establishment of a coordinated strategy to reduce the water quality impacts of wastewater discharges and other sources of drinking water contamination. In addition, establishing water quality objectives is key to the future development of TMDLs for drinking water parameters of concern.

The CMARP program is identified as the primary vehicle for measuring improvement in water quality. There is no agreed-upon baseline for drinking water source quality in the Delta nor criteria for measuring change and the significance of that change. This program needs to rapidly define baseline water quality in order to have a basis of measurement for the future.

Water Management Strategy

CALFED intends to propose legislation requiring metering or measurement of water use for all water users in the State. While accurate measurement of use is necessary for the more sophisticated forms of conservation measures, CALFED must assess the cost of this and all other such a measured and assess its cost-effectiveness against other water management measures as well as identify funding sources. This tactic should be pursued along a continuum of water saving tactics with the most cost-effective measures funded first.

CALFED notes that linkages and assurances are critical to the process of evaluating and constructing new storage in the CALFED program. It indicates measures of success for the program's Water Use Efficiency and Transfer programs must be defined in an MOA to be executed before the ROD, articulating a Clean Water Act Section 404 compliance strategy. It is important that in defining measures of success for water use efficiency that they be defined such that those who may require the benefits of new storage are not thwarted in receiving its benefits by the lack of efficiency actions of others who do not require the storage. In other words, criteria for determining sufficient progress in water use efficiency should assess appropriate progress in the regions which will benefit from new storage and not tie progress on efficiency to areas which do not benefit, and thus do not have the same incentive to conserve. Additionally, since the Transfers program is largely a program which merely develops information on transfers and relies on voluntary market transactions, specific performance criteria defining any amount of transfers as a prerequisite to 404 permitting are inappropriate.

The Phase II document notes on page 94 that a primary impact concern of in-Delta storage is the loss of agricultural land. CUWA believes that this concern is important but secondary to concerns over the impact of in-Delta storage to drinking water quality, particularly loadings of Total Organic Carbon. Additional treatment costs due to increased loadings of TOC could dwarf economic impacts of loss of agricultural land.

The Preferred Program Alternative

The technical analysis in the EIS/R indicates that the preferred alternative will not meet CALFED's public health protection objectives, at least with respect to bromide. According to the EIS/R, the preferred alternative, with 4.75 maf of storage and a 4,000 cfs Hood diversion, will at best reduce salinity levels (and by inference bromide levels) at Clifton Court Forebay by about 21% on average. The Water Quality Program Plan stresses that WQP actions will only supplement water quality improvements from storage

and conveyance changes, and will not reduce bromide levels at the SWP pumps. It would appear from this analysis that additional water management actions -- whether they be water exchanges, new treatment technology, an isolated facility, or some combination of actions -- will be needed to meet the long-term bromide objective. The Phase 2 Report nevertheless suggests in several places that additional actions might not be needed to meet CALFED's objectives. CALFED must provide technical analysis that supports the suggestion, made on pages 81 and 85 of the Phase 2 Report, that Stage 1 actions could be sufficient to meet CALFED's long-term public health protection objectives.

If CALFED cannot provide credible technical analysis to support the suggestion that Stage 1 actions will be adequate to meet its long-term public health protection objectives, then it must amend the list of Stage 1 actions to include planning activities needed to support a final decision on, and begin implementation of, the suite of actions proposed as options to meet those objectives. If those additional Stage 1 actions will be carried out by agencies other than CALFED, CALFED must identify funding sources or other mechanisms for supporting those actions. For example, to encourage the development of advanced treatment technologies, CALFED must provide funding for the water treatment and desalination research and pilot studies. If CALFED does not provide the technical analysis requested or amend the list of Stage 1 actions to reflect aggressive progress toward CALFED's long-term objectives, then we must conclude that the preferred alternative, as currently described in the EIS/R, will not meet CALFED's long-term public health protection objectives.

Water Use Efficiency Program - CALFED's assurance strategy for urban water conservation is to support certification of urban BMP's by the California Urban Water Conservation Council. CUWA worked with the Environmental Water Caucus to propose to CALFED a framework for that process. Agreement between CUWA and the EWC to support that framework is contingent upon acceptance of an overall CALFED plan acceptable to each organization. While CUWA members have actively pursued the BMPs on a voluntary basis, there are many substantive unresolved issues within the Program that are necessary to close prior to a Record of Decision before CUWA can accept a CALFED decision. Therefore, until such time we have satisfaction that a balanced overall program has been adopted, we will not support a mandatory certification process.

CUWA is concerned that levels of conservation projected to occur under both the No Action Alternative and the Preferred Program Alternative are overstated. According to the Water Use Efficiency Program (WUEP), the conservation expected to occur under the No Action Alternative exceeds that expected to occur through full implementation of the urban BMPs. We disagree with this assumption. Under the terms of the MOU, urban agencies are to implement those BMPs that are determined to be cost-effective from a local perspective. CUWA believes that the planning and technical assistance and financial incentives proposed under the WUEP will be necessary to overcome cost-effectiveness limitations and achieve full BMP implementation. CUWA is currently conducting a study to identify the amount of conservation expected to occur through the

implementation of BMPs that are locally cost-effective and therefore, representative of the conservation potential associated with the No Action Alternative. The study will also look at (1) the level of financial incentives needed to achieve full implementation of the urban BMPs; (2) the potential water savings from emerging water conservation technology; and (3) the incentives required to achieve the conservation potential from emerging measures. This study will help CALFED refine its conservation projections for both the No Action Alternative and the Preferred Program Alternative and identify the financial incentives needed to achieve the Preferred Program Alternative savings potential.

CALFED should consider conducting a study to verify the estimated water recycling with and without the CALFED solution and the level and type of financial incentives needed to achieve this potential. CALFED should also consider the long-term viability of the water recycling programs from a water quality (salinity) perspective. These investigations would be useful in helping CALFED refine its water recycling projections and incentive programs. Agricultural areas may have a very high potential for reuse of urban recycled water and should be encouraged. Additionally, CALFED should consider the potential for using recycled water for environmental enhancement purposes and meeting Delta outflow requirements.

Storage - CUWA believes that a combination of new groundwater and surface water storage is necessary to capture water during high runoff periods to improve Delta water quality, water supply reliability and provide ecosystem improvement. CALFED's modeling runs clearly show that flows required for the Ecosystem Restoration Program reduced the reliability of supplies for other uses. They also show that storage can be developed to mitigate these losses and provide for increased reliability to meet CALFED goals. CALFED needs to define through the Water Management Strategy and Integrated Storage Investigations, the gross amount and general location (north of/south of the Delta) of surface and groundwater storage necessary to achieve Program objectives by the time of the Record of Decision. It is not acceptable to leave this question entirely open throughout the duration of Stage I. Until this threshold decision is made, CALFED should withhold action on a Record of Decision.

~~Conveyance~~— The Preferred Alternative indicates that a pilot program for a screened channel between the Sacramento River and Mokelumne would be constructed if the Program measures are consistently not achieving drinking water quality goals. This is an important option which must be retained in the Program. However, as noted above, under our Water Quality Improvement Strategy comments, making such a decision requires a well-defined set of baseline water quality data and criteria for assessing change. Further, such a facility could have significant impacts on Mokelumne River Salmon and the effect of such a facility would need to be assessed and mitigated.

The Preferred Program alternative also includes a "process" for determining the conditions under which any additional conveyance facilities and/or other water management actions would be taken in the future. This process is unduly vague and open-ended, and lacks clearly defined evaluation criteria. More detail on this process

needs to be developed for public comment prior to a Record of Decision. Specifically, the evaluation of how water suppliers can provide a level of public health protection equivalent to Delta source water quality of 50ppb Bromide and 3 ppm TOC should not use the term "best" which is subject to various value-driven interpretations (p. 109). Rather, it should refer to "...how water suppliers can cost effectively provide ..." this level of protection, which more correctly references CALFED's specific target for drinking water (p. 43).

Program Implementation

CALFED program elements are in widely varying "states of readiness" for implementation. For example, the Levee System program and Ecosystem program are further developed than other important elements such as the water quality, storage and conveyance and transfers elements. Prior to the ROD, CALFED must further develop these elements to ensure that balanced implementation can proceed throughout each stage.

Many program elements are not yet at a level of detail where either meaningful direction can be determined or where specific comment on proposed actions can be made. This is particularly true of the water management elements and the role of surface storage, conveyance decision processes, the Finance Plan and Governance. CALFED indicates a variety of processes to provide further detail on these issues as a Record of Decision is developed. How proposed decisions on these details will be discussed with the stakeholder community and the general public precedent to a Record of Decision is not clear. Notwithstanding comments provided herein, CUWA reserves the right to comment on these elements in the context of support of an overall CALFED decision.

Stage I Actions – Many of the actions described in the Phase II Document require more specificity. CUWA has submitted a more detailed list of Stage I projects we propose for the program. Please see attachments A and the Implementation Plan - Stage I Implementation section of Attachment D to our September 22, letter to Rick Breitenbach, containing our detailed comments on the Programmatic EIS/EIR for this list of projects.

Finance

In order to secure buy-in to CALFED's beneficiaries-pay principle, each beneficiary must be shown identifiable, tangible and quantifiable benefits in each of the program areas that beneficiaries are expected to pay. CALFED must reconcile the differences in benefits analysis between the draft EIRS/R, the Water Quality Program Plan and the draft finance plan, particularly the lack of technical evidence to support the water supply reliability and drinking water quality benefits referred to in the finance plan.

CALFED cannot equate public financing with user-based financing. While a broad-based user fee may be appropriate in some instances to finance "common property" benefits, it is not a surrogate for public financing sources such as federal and

state appropriations or general obligation bonds. Furthermore, diversion fees assessed to water users can only be supported if they are linked specifically to tangible benefits and are part of a broad, wide-ranging plan that includes public financing.

CALFED must demonstrate that its Program is more cost-effective to “buy-into” than for agencies to seek their own alternative solutions. Furthermore, there must be a nexus between costs imposed by CALFED on urban agencies and both the rationale for and the ability to recover these costs through water service based charges or rates.

Governance

It is imperative that CALFED come to closure on governance issues by the ROD. CUWA, along with other major stakeholders, supports the creation of a joint federally and state chartered oversight entity for overall program coordination, tracking and adaptive management as well as an entity to run the Ecosystem Restoration Program. The latter may be accomplished however, by the appointment of a Chief Restoration Scientist within the oversight entity provided that person is given sufficient authority to direct and coordinate CALFED agencies involved in restoration.

CUWA strongly supports the proposal to establish a Delta Drinking Water Council to advise CALFED on changes needed in the CALFED Program to achieve drinking water quality objectives, and review work by independent expert panels related to drinking water issues. The Drinking Water Council is also tasked with preparing findings at intermediate stages during Stage 1 (2003 and 2007) assessing trends in Delta water quality, trends in treatment technology and regulation and recent findings and summary status of human health effects of disinfection byproducts.

Multi-Species Conservation Strategy

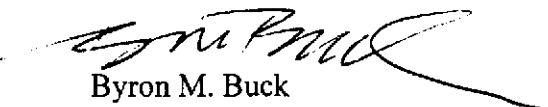
The primary benefit expected by water users from the Ecosystem Restoration Program was provision for recovery of threatened and endangered species and in turn, assurance to water users of reliability of their supplies. We note that the Multi-Species Conservation Strategy for the Program will not provide the level of analysis necessary to authorize “take” of species – critical to water project operational assurances. This authorization will be based on action-specific implementation plans (ASIP) for each action or group of actions within the Program. While we understand the current lack of detail which precludes broad authorization of “take” for the entire Program, we are concerned that the ASIP process will diminish or eliminate water user benefits of the actions. We are concerned the resource agencies will add additional measures to the Program actions they deem necessary for ESA CESA and NCCPA compliance which will eliminate water user benefit. Continued support for the CALFED program is predicated on sharing water supply and water quality benefits with the environment and water users. If water user benefits from Stage I actions are diminished through the ASIP process, little incentive will be left water users to support financing the entire CALFED program.

Clean Water Act Section 404

Our concerns are similar with respect to permitting under Section 404 of the Clean Water Act as with the MSCS and ASIP process. Additionally, we support the development of a MOA to develop a compliance strategy for Section 404. In particular, establishment of performance criteria for alternatives to water storage projects which would represent the limit of practicability for the purpose of Section 404 (b) (1) alternatives analysis is imperative. Such performance criteria must be defined in terms of actions and efforts, not in outcomes such as acre-feet conserved or amount of transfers completed, as outcomes cannot be guaranteed when they are beyond the full control of one party. CALFED must adequately publicize the development of this MOA and allow for significant stakeholder input.

We appreciate the opportunity to provide input on the Phase II Document. We look forward to working with your staff on Stage I of the Implementation Program.

Sincerely,



Byron M. Buck
Executive Director



CALIFORNIA URBAN WATER AGENCIES

September 22, 1999

Rick Breitenbach
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

CUWA Comments on June 1999 Programmatic EIS/EIR for the CALFED Bay-Delta Program SC#96032083

Dear Mr. Breitenbach:

This letter and its attachments constitute technical comments of the California Urban Water Agencies on the subject PEIS/EIR. The letter focuses on general comments on the documents, issues that cross-cut throughout the program documentation. Specific comments on particular issues with page citations for the document are attached to this letter (attachment D). Also attached to this letter is a letter to Lester Snow regarding the Phase II Report. Inasmuch as the Phase II report is a technical appendix to the PEIS/EIR, we request that this letter be included as part of our comments on the PEIS/EIR.

CUWA remains a strong supporter of the CALFED Bay-Delta Program's objectives. While there are many unresolved issues and we cite what we believe are numerous deficiencies in the documents as follows, we remain committed to a successful Program and look forward to working on resolution of remaining issues prior to a Record of Decision.

The comments herein reflect the views of the California Urban Water Agencies and do not supersede or negate comments that may be made by individual members of this organization.

CUWA has focused on specific topical areas of the PEIS/EIR including Water Quality, Water Supply and Water Management, Urban Water Supply Economics, Regional Economics, Ecosystem Restoration, Water Use Efficiency, Transfers, the Implementation Plan including Governance, Finance, Conservation Strategy, Stage I Implementation and, the Phase II Report and Preferred Alternative. Both our general and specific comments are arranged by these topical areas with the Phase II Report and Preferred Alternative covered in a separate letter attached (attachment C).

General Comments

Due to the complexity and controversy surrounding the CALFED Program, many program elements are not yet at a level of detail where either meaningful direction can be determined or where specific comment on proposed actions can be made. This is

particularly true of the water management elements and the role of surface storage, conveyance decision processes, the Finance Plan and Governance. CALFED refers to a variety of processes which will be necessary to provide further detail on these issues as a Record of Decision is developed. Decisions which may be provided on these elements may imply environmental and other impacts which are not described in the PEIS/EIR. CALFED must immediately outline a schedule for resolution of these issues and a process whereby meaningful stakeholder input can be realized.

CALFED must explicitly recognize and actively manage often conflicting mandates. CUWA urges CALFED agencies to pursue a coordinated decision process that acknowledges the linkages between CALFED, CVPIA, and Trinity River Restoration activities. The decisions regarding these three programs must be linked to ensure maximum coordination. The CVPIA and Trinity River Restoration activities have the potential to constrain water supplies, and these constraints need to be addressed by CALFED to ensure adequate water supplies for M&I users. The Record of Decision for CALFED should reference the need to address water supply reliability issues created by CVPIA and Trinity River Restoration. Ultimately, CALFED must maximize regulatory certainty for water users through linkage to appropriate, aggressive ecosystem restoration.

Water Quality

Achievement of source water quality improvement is paramount to CUWA. CUWA supports achievement of CALFED's long-term water quality target of 50 µg/l bromide and 3 mg/L total organic carbon (TOC) or an equivalent level of public health protection through a cost-effective combination of conveyance changes, alternative source water, source control, and treatment. Obtaining these targets will help ensure that urban agencies can meet future U.S. Environmental Protection Agency regulations for disinfection by-products and pathogens. While the long term targets are appropriate and supported, CUWA is concerned that the Water Quality Program Plan acknowledges that the Stage I actions will not in themselves reach the targets and that achievement of same is dependent on future decisions related to storage and conveyance or other non-source quality actions. It is unfortunate that Stage I actions on water quality are not sufficient to achieve CALFED's long-term targets and may not even be sufficient to assure continuous improvement in source water quality. CALFED needs to make explicit, consistent acknowledgement of this reality in the body of the PEIS/EIR, Phase II Document and Findings, not just in the Water Quality Program Plan. Further, the Final PEIS/EIR should disclose the consequences of not meeting its water quality targets. This should include estimated expenditures for enhanced water treatment facilities and alternative water supply sources and an evaluation of the feasibility/effectiveness of these alternatives versus a Delta solution.

CALFED should commit to improve or maintain existing high quality urban water supplies and in-Delta supplies. CALFED must also adopt intermediate milestones for drinking water parameters such as bromide and TOC. Intermediate milestones are needed to indicate whether CALFED has achieved its stated goals of continuous improvement in water quality during Stage I (the first 7 years) and to ensure that urban agencies treating

Delta water can comply with drinking water requirements using cost-effective feasible technology. We reiterate our recommendations that these intermediate water quality milestones be based on those mentioned in our letter to Lester Snow dated May 20, 1999 (Attachment E). These were a bromide concentration < 300 µg/L and TOC concentration < 4.0 mg/L by 2002 and bromide < 100-150 µg/L and TOC < 3.5 mg/L by 2005. These intermediate milestones would be quarterly (3-month) averages. It is important to adopt intermediate milestones in order to track short term changes in quality against intermediate benchmarks of continuous improvement and assure improvement takes place versus degradation.

CALFED needs to also adopt water quality objectives and intermediate milestones for salinity for the purposes of achieving its water supply reliability goals. CALFED relies extensively on water recycling and improved conjunctive use to help lower the growing gap between supply and demand. Without improvement in source water salinity, achieving these objectives may be uneconomical at best and potentially infeasible. The Water Quality Program Plan (page D-5) indicates that CALFED's targets for salinity reduction in Delta drinking water supplies are 220 mg/L TDS (10-year average) and 440 mg/L TDS (monthly average). CUWA believes these salinity targets are not sufficiently protective of Delta drinking water supplies and will not ensure the ability to meet CALFED goals for water use efficiency and water recycling. CUWA is currently conducting an analysis of the cost and water resource management implications of source water quality salinity levels and will provide specific suggestions and rationale for salinity objectives under separate cover.

The actions included in the Water Quality Program Plan are primarily source control or pollutant reduction actions. The feasibility and cost-effectiveness of these actions are largely unknown. While we recognize that CALFED intends to determine the feasibility and cost-effectiveness for the actions during the early stages of implementation, it is not possible at this point to determine the precise effect of the actions on Delta water quality. Most of the actions can at best be characterized as pollution prevention actions that will help ensure no further degradation of water quality in the Delta; however, there is little or no evidence that the proposed actions will actually improve water quality in the Delta beyond existing conditions. As a result, statements in the Revised Draft PEIS/EIR that assume that Water Quality Program actions will improve water quality for municipal supplies are not supported by the Program Plan document.

In the Drinking Water chapter of the Water Quality Program Plan, CALFED discusses the limitations of the Water Quality Program actions with respect to improving drinking water quality and achieving reduced levels of bromide, TOC and salinity (pages 3-3, 3-11 and 3-46). CALFED states that Water Quality Program actions are not likely to achieve reductions in bromide and in salinity derived from seawater intrusion, and points out that the feasibility of actions to reduce TOC is largely unknown. In addition, CALFED points out that implementation of Ecosystem Restoration Program actions may result in increased levels of TOC in the Delta. Given this information, it is clear that the CALFED goal of continuous improvement in drinking water quality is unlikely to be achieved during Stage I. This situation is unacceptable and points to the need for

CALFED to develop and commit to a set of actions tied to intermediate milestones for water quality improvement to ensure drinking water quality improvement goals are achieved.

In both the Water Quality Program Plan (page 12-10) and the Revised Phase II Report (Page 43), CALFED introduces the concept of the Drinking Water Quality Improvement Strategy. CUWA supports the overall concept of the Strategy, but is concerned that there is insufficient detail to evaluate whether or not it will be effective. The Strategy includes a combination of elements to achieve drinking water quality improvement and public health protection, including source control actions, storage and operations, alternative sources of water, advanced treatment, health effects studies, and if found to be necessary, conveyance improvements. However, the only actions described in any detail are the source control actions described in the Water Quality Program Plan, whose limitations we note above. CALFED makes no commitment as to timing, decision process or implementation of the other elements of the Strategy. In order to achieve continuous improvement in water quality and meet CALFED goals, CALFED must establish a clear set of actions and a schedule for implementing all elements of the Drinking Water Quality Improvement Strategy in a balanced manner starting early in Stage 1. It is not acceptable to implement only source control actions in Stage 1 and wait for a determination of their effectiveness before taking action to implement the other elements of the Strategy when CALFED itself states Stage I actions are not sufficient to the task at hand.

CUWA strongly supports the proposal to establish a Delta Drinking Water Council to advise CALFED on changes needed in the CALFED Program to achieve drinking water quality objectives, and review work by independent expert panels related to drinking water issues. The Delta Drinking Water Council is also tasked with preparing findings at intermediate stages during Stage 1 (2003 and 2007) assessing trends in Delta water quality, trends in treatment technology and regulation and recent findings and summary status of human health effects of disinfection byproducts.

The Delta Drinking Water Council should include representatives from agencies responsible for regulating drinking water, urban drinking water agencies that treat and deliver Delta water supplies and regions potentially physically affected by facility decisions recommended by the Council. As urban drinking water agencies are responsible for delivering safe drinking water that meets all state and federal regulations, they should have a proportionally greater representation on the Delta Drinking Water Council to ensure meaningful representation. In addition the urban drinking water agency representatives on the Council should include representatives from both northern and southern California urban water agencies.

The Council is proposed by CALFED as a BDAC subcommittee. CUWA believes that the Council must have direct access and reporting to the CALFED Water Policy Group as well as BDAC.

CALFED should provide financial and policy level support for the development of a *Drinking Water Protection Policy* by the Central Valley Regional Water Quality Control Board, working with the State Water Resources Control Board, Department of Health Services, San Francisco Bay Regional Water Quality Control Board, and the U.S. Environmental Protection Agency. This policy will include the development of water quality objectives for TOC, TDS, bromide and pathogens, and the development of a *management plan to meet the objectives*. Development of this policy is important for achieving drinking water quality improvement, and should include the establishment of a coordinated strategy to reduce the water quality impacts of wastewater discharges and other sources of drinking water contamination. In addition, establishing water quality objectives is key to the future development of TMDLs for drinking water parameters of concern.

CALFED has proposed a number of actions to improve source water quality in the Delta and the tributaries and there is much discussion in the Phase II report about measuring the effectiveness of these actions to determine if water quality conditions have improved. CALFED needs to determine and disclose the baseline water quality conditions under various hydrologic year types and seasons so that future water quality conditions can be evaluated against this baseline. It will be important to have the data statistically analyzed and to have agreement among stakeholders and CALFED agencies on the baseline conditions. This information needs to be established as part of a comprehensive monitoring program during the early years of the CALFED program.

CALFED must clarify its commitments to Stage 1 actions and clarify differing stage 1 lists within the PEIS/EIR and appendices. See Attachment D for further explanation of the inconsistencies in the document.

The Water Quality Program Plan appropriately discusses the need to adaptively manage the Water Quality Program and the need therefore, to review and change actions over time as we learn more about the system. The Water Quality Program Plan should, however, contain the complete list of actions (Priority Actions) that have been identified at this time. The Stage 1 actions should be a subset of the Priority Actions that need to be completed in the first seven years of the Program and the Stage 1A actions should then be a subset of the Stage 1 actions that need to be completed in the first two years of program implementation. There are currently a number of Stage 1A actions that do not appear on the Stage 1 lists or in the discussions of Priority Actions. A tiered approach going from Priority Actions to Stage 1 Actions to Stage 1A Actions would help organize the long list of seemingly unrelated actions into a cohesive plan.

Water Supply and Water Management

CUWA believes that a combination of new groundwater and surface water storage is necessary to capture water during high runoff periods and improve Delta water quality, supply reliability and ecosystem improvement. CALFED's modeling runs clearly show that flows required for the Ecosystem Restoration Program reduce the reliability of supplies for other uses. They also show that storage can be developed to mitigate these

losses and provide for increased reliability to meet CALFED goals. Discussion to this effect should be added in the final report and findings.

As the Program documents point out, conservation will most often not result in new Delta flows unless storage is available in wet years to capture unneeded water. Conservation will generally not help improve water quality unless the water can be stored for use when water quality is poor. High winter flows cannot be captured and stored in sufficient quantity in groundwater because of the slow rate at which water can be spread or injected into groundwater aquifers.

Current modeling indicates additional storage immediately adjacent to and/or south of the Delta has the greatest potential for producing improvements in delivered water quality and improving supply reliability. This should be validated by the Integrated Storage Investigations. Such storage would allow the capture of high quality water during flood events for subsequent delivery to water users without being affected by limitations on diversions.

CUWA continues to have serious concerns regarding storage of water on Delta islands consisting of peat soils. Recent field experiments conducted for CUWA and the Department of Water Resources have confirmed that storage of water on peat soils creates high levels of total organic carbon in the water stored. TOC is a regulated precursor to drinking water contaminants. CALFED must provide assurances that any use of in-Delta storage is consistent with continuous improvement in water quality as well as intermediate and long term drinking water goals. We are also concerned about impacts of in-Delta storage on salmonids migrating from east-side tributaries and the San Joaquin river.

The CALFED PEIS/EIR includes a proposal to establish an Environmental Water Account (EWA) to enable more efficient use of water for environmental purposes and decrease the conflict in uses of Bay-Delta water supplies. The EWA will allow more flexible operations to provide additional fisheries benefits when most needed and will allow modifications of operational limitations when there will be no fisheries impacts. CUWA believes that the EWA should be implemented as soon as possible to allow these benefits to be realized.

However, the EWA, like all CALFED actions and alternatives, must be designed in such a way that new benefits are shared, that any new water is allocated consistent with CALFED's water supply and water quality, as well as environmental objectives. If not properly operated, the EWA could cause significant degradation of water quality at municipal diversion points and significantly reduce the operating flexibility of the system.

The revised Draft PEIS/EIR outlines a process for determining the conditions under which any additional conveyance facilities and/or other water management actions would be considered. These include an evaluation of how urban water agencies can best provide a level of public health protection equivalent to Delta source water quality of 50 µg/L bromide and 3 mg/L TOC, an evaluation based on independent expert panels' reports on CALFED's progress toward these measurable water quality goals and CALFED's

progress toward ecosystem restoration objectives, with particular emphasis on fisheries recovery. CALFED must also develop the planning process for determining the need for additional facilities and/or other actions, inasmuch as the Water Quality Program Plan indicates that current Stage I actions will not achieve CALFED's water quality targets. CALFED must also immediately begin collection and analysis of water quality and biological data. These data are necessary to evaluate CALFED's progress toward meeting its goals and can be used in any decisions regarding the need, sizing, and timing of an isolated facility or any other additional facilities.

Ecosystem Restoration

CALFED needs to provide additional, more complete supporting scientific justification for the Ecosystem Restoration Program (ERP) restoration objectives, targets, actions for species recovery, habitat restoration and ecological processes, in the ERP Volumes I and II. It also should provide refined, clearly understandable ERP selection and prioritization criteria and use them to support implementation recommendations. Additional more detailed, broadly supported conceptual models in the ERP to assess both current conditions and potential benefits of restoration actions are needed.

CUWA is concerned that water supply needs for ecosystem restoration are not well justified. Additionally, better integration of Delta water project operations and the ERP should be described. CALFED should provide technical analysis and scientific justification in the ERP specifically in support of recommended environmental water flow actions and demonstrate how such actions will be adaptively managed consistent with other objectives of the Program.

Linkage between the ERP and the Comprehensive Monitoring, Assessment and Research Program (CMARP) - is critical to program success and better ecosystem restoration decisions. CALFED should provide additional analysis and scientific justification to identify how to best link the ERP actions with the necessary monitoring and research to guide adaptive management. Similarly, CALFED should provide clearer documentation of the consistency between the ERP and MSCS

CUWA is concerned that the CALFED PEIS/R has not sufficiently addressed the environmental impacts of the preferred alternative on the fisheries of Eastside tributaries and fall-run chinook salmon. The Mokelumne, Cosumnes and Calaveras rivers should be considered independently from the San Joaquin River due to hydrologic and ecological conditions.

Comprehensive Monitoring, Assessment and Research Program

CALFED should provide an explanation of how CMARP is to be integrated with the ERP (or the other CALFED programs), as there is no effective linkage shown between the ERP and CMARP programs in the documentation. The potential Stage I activities of CMARP (page 151-152, Revised Phase II Report) do not mesh well with the potential ERP actions for Stage I (pages 11-14, Draft Implementation Plan). Explain how CMARP

science will be brought to the ERP, at a programmatic, implementation or budgetary level, as CMARP and ERP appear to be on separate tracks based on the documentation.

CALFED indicates in the draft Implementation Plan (pages 29-40) that \$38.3 million for unspecified science and monitoring will be pursued for both in ERP and CMARP. CALFED should provide an explanation and justification as to what this funding would cover and how critical or effective it is expected to be.

Water Use Efficiency

CALFED's assurance strategy for urban water conservation is to support certification of urban BMP's by the California Urban Water Conservation Council. CUWA worked with the Environmental Water Caucus to propose to CALFED a framework for that process. Agreement between CUWA and the EWC to support that framework is contingent upon acceptance of an overall CALFED plan acceptable to each organization. There are many substantive unresolved issues related to operating details not contained in the framework, and our satisfaction that CALFED program benefits will be worth the acceptance of a new regulatory burden, that are necessary to close prior to a Record of Decision before CUWA can accept a CALFED decision. CUWA members have demonstrated good faith effort and intention through their active, voluntary participation in the California Urban Water Conservation Council and voluntary implementation of the BMPs. However, until such time we have satisfaction that a balanced overall program has been adopted, we will not support a mandatory certification process.

CALFED plans to identify measurable goals and objectives for urban water conservation and recycling by the time of the ROD. Any measurable objectives for conservation must be related to the installation of water conservation devices in urban regions or implementation of other conservation related programs rather than goals of acre-feet savings as a result conservation measures. This is consistent with agreements that led to the establishment of the California Urban Water Conservation Council. Further, CUWA does not support linking numeric targets for urban recycling to decisions on other actions such as authorizing new storage. Recycling of water in urban areas is subject to many variables that affect the feasibility and cost-effectiveness of recycling programs. This variability makes it impossible to accurately predict future recycling amounts and impractical to assure any specific numeric objective will be met without ignoring local conditions, needs and economics.

We note that based upon previous comments, estimates for real urban conservation savings (irrecoverable losses) as stated in the Water Use Efficiency Program Plan have been reduced from 2.35 to 1.33 maf during the program's duration. We believe these estimates are a more realistic estimate of potential savings from residential indoor conservation, commercial - industrial - institutional conservation and distribution system loss reduction potential. However, it must be emphasized in the document that such estimations are not a well-refined science and could deviate significantly due to confounding factors. CUWA is commissioning further technical work in this area and we

hope to work with CALFED and others to refine these estimates during Stage I as part of adaptive management. We also note that the document has improved in its estimates and explanations of potential BMP costs over the original draft PEIS/EIR.

CALFED's recycling estimates are overly optimistic. While, the no action recycling assumptions in the Plan have been lowered by 400kaf over the previous DEIS/EIR, to a total potential of about 2.0maf, this Plan still assumes however that 65% of wastewater flows can be recycled. To reach this level would require massive storage for reclaimed water during winter months to make this water available for irrigation demands which exist only during warmer seasons. Further, such storage would usually require significant investments in pipelines and pumping stations to elevate water from the treatment plants to a storage location which can then serve irrigation uses, provided usable sites are even available. This combination of costs greatly inhibits the ability to achieve the level of recycling CALFED is assuming. A more realistic outer limit figure based upon experience and reflecting available uses which can be cost-effectively connected to a reclaimed water system is 30-40%.

While the issue of salt and water management, including recycling is discussed elsewhere in the PEIS/EIR, there is no discussion on limits to recycling imposed by high salinity imported water in the Water Use Efficiency Program Plan. The final document should have a discussion of these limitations as they will bear greatly on the ability to increase recycling, particularly in Southern California which has the most serious salt problem.

Water Transfer Program Plan

The purpose of CALFED's water transfer framework is to facilitate and encourage the use of water transfers as a water management tool. Some of the potential solution options put forth in the document, however, run the risk of further encumbering transfers rather than encouraging a more successful market. CALFED should take care that its proposals avoid increasing unnecessary regulatory and other hurdles to water transfers.

CALFED's water transfer framework should not increase the time necessary to achieve a transfer or impose other burdens which deter transfers from taking place. CUWA supports CALFED's objective of addressing the physical constraints that need to be resolved for a more effective water transfer system, particularly for cross-Delta transfers. However, CUWA is concerned that CALFED actions could actually decrease the Bay-Delta system's already limited ability to accommodate water transfers, contrary to CALFED's goals. The EWA, for example, if not properly operated could significantly reduce the operating flexibility of the system. CALFED must ensure that its actions do not hinder the ability of water users to meet their water supply needs through water transfers.

A non-regulatory Water Transfer Information Clearinghouse that provides neutral information on water transfers could be useful in meeting the assurance needs of source

area stakeholders. However, the Clearinghouse should not make technical or quasi-technical determinations on individual water transfers.

Implementation Plan

CALFED needs to develop a well-defined detailed assurances package regarding operations of new facilities and protection of existing rights and beneficial uses. These assurances need to address compliance with applicable laws, policies, and plans, and regulatory framework. Chapter 8 in the revised Draft PEIS/EIR should be revised to include discussion of California's area of origin statutes (e.g., Water Code sections 11460 and 10505 et seq.).

Implementation Plan – Governance

It is imperative that CALFED come to closure on governance issues by the Record of Decision. CUWA, along with other major stakeholders, supports the creation of a joint federally and state chartered oversight entity for overall program coordination, tracking and adaptive management as well as an entity to run the Ecosystem Restoration Program. The latter may be accomplished however, by the appointment of a Chief Restoration Scientist within the oversight entity provided that person be given sufficient authority to direct and coordinate CALFED agencies involved in restoration.

CUWA has significant concerns regarding governance for the Water Use Efficiency Program – see comments above under Water Use Efficiency and below under Implementation Plan – Stage 1 Implementation.

Implementation Plan- Finance

CALFED must strive to quantify benefits to each identified beneficiary group. In order to secure buy-in to CALFED's beneficiaries-pay principle, each beneficiary must be shown identifiable, tangible, and quantifiable benefits in each of the program areas that "beneficiaries" are expected to pay. Using the Water Quality Program as an example, we expect CALFED to demonstrate, to urban water users as a potential beneficiary expected to pay, the level of reduction in parameters of concern, such as bromide and total organic carbon, that would result from the proposed actions. This "benefit" could then be valued at treatment costs avoided or other measures of willingness to pay.

The technical analysis in the draft PEIS/EIR does not support the benefits analysis in the Finance Plan, particularly in the areas of supply reliability and water quality. According to the draft PEIS/EIR, the reliability of Delta water supplies may decrease substantially in the future whether or not the preferred alternative is implemented. This conclusion, if correct, does not support the draft finance plan's claim that the Ecosystem Restoration Program (ERP) and Watershed Management Program (WMP) would increase water users' supply reliability. The analysis presented in the draft PEIS/EIR and WQP Appendix also does not support the draft finance plan's assertion that the WQP, or other common programs, will provide public health benefits or reduce salinity levels for M&I

water users. The Water Quality Program (WQP) Appendix indicates that WQP actions will minimally affect bromide levels, particularly for SWP users, and will not reduce salinity resulting from seawater intrusion. Actions to control San Joaquin River salinity levels are described in the Appendix as having limited long-term sustainability. The Appendix suggests that organic carbon might be subject to control by drainage treatment, if the technology can be proven and if it can be made economically feasible; however, only pilot-scale drainage treatment projects are proposed for Stage 1.

CALFED does not differentiate between general public benefits and water user benefits. Throughout the draft finance plan, CALFED proposes to rely on water user fees to pay for programs that provide public or environmental benefits. While a broad-based user fee may be appropriate in some instances, it is not a surrogate for public financing sources such as federal and state appropriations or general obligation bonds. CALFED should not shy away from these public financing mechanisms simply because they would require voter approval. To the contrary, a voter approval process would legitimize the public's willingness to pay for public benefits such as ecosystem restoration and a healthy environment.

The draft finance plan frequently references the 1996 Business Leaders' Report on Financing as justification for a diversion fee to fund the portions of the CALFED Program that provide broad-based public benefits. The 1996 Report did identify a diversion fee as an option for funding public benefits, but only to the extent that general obligation bonds or other appropriate public financing sources are not forthcoming. The Report specifically identified ecosystem restoration as a public benefit that may be appropriately funded with general tax revenues. The more appropriate role of the diversion fee, as described in the Report, would be to fund projects or actions that provide so-called "common property" benefits, i.e., benefits that accrue to identified groups of resource users, but from which individual users cannot be excluded. The draft Finance Plan does not appear to recognize this distinction, and instead seems to view the diversion fee simply as a convenient source of funding not linked to any specific water user benefits.

Diversion fees assessed to water users can only be supported if they are linked specifically to tangible benefits and are part of a broad, wide-ranging plan that also includes public financing. The draft finance plan appears to single out water users – particularly *urban* water users – as the source of "deep pockets" that CALFED will tap liberally for the majority of long-term funding. This is true even for programs that may provide broad-based, public benefits, regardless of how much (or how little) water users stand to benefit. For instance, the draft finance plan identifies a Delta diversion fee as a potential funding source for various elements of the CALFED Program, including environmental storage, the portion of conveyance facilities dedicated to the ecosystem, and the ecosystem portion of the common programs. Unfortunately, the analysis in the draft PEIS/EIR does not demonstrate that water users will benefit from these programs. To justify water user funding for these programs, CALFED must provide regulatory assurances that protect water users from additional negative impacts on their water supplies due to Endangered Species Act listings or other regulatory actions.

Urban water conservation and recycling projects also provide public benefits. We disagree with the draft plan's suggestion that the public benefits from WUE measures only in those cases when the measures improve Delta water quality or produce water that is dedicated to the ecosystem. Through conservation and recycling, urban agencies have substantially reduced their total water demands. The Metropolitan Water District estimates that its member agencies save more than 700,000 acre-feet of water annually through conservation and recycling programs. Clearly, these water use efficiency efforts help reduce conflicts in the Delta system, providing a substantial public benefit.

Proposed Water Use Efficiency Program (WUEP) funding options do not provide adequate financial incentives for projects that are not locally cost effective. Three of the four options proposed for funding WUE measures would limit public funding, either entirely or to a great extent, to those projects that improve water quality or produce water for the environment. We are concerned that the proposed options will be ineffective in helping CALFED reach its very ambitious water conservation and recycling goals. The draft PEIS/EIR projects that CALFED could, through its WUEP actions, more than double the amount of urban conservation and recycling than would otherwise occur. Achieving this goal -- if indeed it can be achieved -- will require the implementation of water conservation and recycling measures that are not locally cost-effective. The funding options proposed in the draft Finance Plan would not, except in a few isolated cases, provide urban agencies incentives to implement these more expensive projects.

CALFED must demonstrate that its Program is more cost-effective to "buy into" than for agencies to seek their own alternative solutions. Our customers hold us as urban water providers accountable for providing a reliable water supply of the highest quality in the most cost-effective manner possible. We supported CALFED because we believed it offers the best opportunity to resolve Bay-Delta issues while helping us to achieve our reliability and quality goals. CALFED needs to demonstrate that its Program indeed provides the value that we can responsibly pay for and receive. There must be a nexus between costs imposed by CALFED on urban agencies and both the rationale for and the ability to recover these costs through water rates. Although CALFED may intend to influence water use behaviors and public values by increasing the price of water, water agencies cannot do this as a matter of law. Water agencies are restricted to set water rates based on the costs of providing water supply services. CALFED must provide direct value in exchange for these costs for so that water agencies can demonstrate to their ratepayers a connection between the rates and charges they apply and the actual costs of providing water supply.

The draft financing plan must account for the cost of re-operating the SWP and CVP to achieve new environmental purposes. The draft plan appears to assume that the SWP and CVP will not only: a) Continue to operate to meet both existing and new Delta standards, but will re-operate existing project facilities to support the Environmental Water Account. But accomplishment of these objectives means the projects will lose flexibility and the project contractors will incur additional risks due to deferred and make-up pumping. CALFED seems to have ignored the costs that the projects and their contractors are incurring because of these new environmental purposes.

CALFED must be consistent in applying policies in the draft finance plan. There are many inconsistencies in the draft finance plan as illustrated below: The draft plan requires beneficiaries to pay the full cost of planning, design, construction, and operations and maintenance of some types of facilities. But this is not true for other types of facilities, particularly where CALFED believes it needs to court local support, e.g. groundwater storage. CALFED must address this apparent contradiction.

- a) CALFED seems to legitimize “ability-to-pay” issues for levee work but insists that all water users must pay the full cost of new supplies. CALFED must disclose what criteria are being used in applying these broad policy principles.
- b) The draft finance plan introduces a “polluters-pay” concept as a financing option for the Water Quality Program. The WQP Appendix notes that the restoration and creation of wetlands under the ERP could increase organic carbon and bromide concentrations in Delta water (page 3-8). Assuming that research confirms the suspected link between proposed ERP actions and drinking water quality degradation, how does CALFED propose to mitigate for this effect? This issue has implications for how the WQP and portions of the ERP, which impact achievement of other objectives are funded.

All beneficiaries of the CALFED Program should bear an equitable share of program costs. Although CALFED has in the past supported the development of a broad, wide-ranging plan incorporating all types of user fees and public financing, the draft finance plan focuses almost exclusively on water user fees. Recreational boaters, dischargers, those conducting dredge and fill operations and others should share program costs. As an example, one of CALFED’s Ecosystem Restoration goals is to “maintain and enhance populations of selected species for sustainable commercial and recreational harvest”. Commercial and recreational fishermen are identified as beneficiaries but they have not been included in the financing options. CALFED should expand the draft plan to include fees on all users of Bay-Delta resources that will benefit from the program.

Implementation Plan - Stage I Implementation

Stage 1 Implementation - CUWA is supportive of CALFED’s overall water quality program objectives and recognizes CALFED’s commitment to implementation of early action bundles in Stage 1A. To that end CUWA believes the following projects listed in attachment A to this letter should be included in this Stage 1A bundle, most of which are generically described in Section 2.2 of the CALFED Implementation Plan technical appendix. Additionally, the level of detail provided on each of the projects in the technical appendix should be greatly expanded when a Stage 1a implementation plan is developed to delineate project schedule, regulatory requirements, budget, and necessary personnel. Attachment B to this letter includes a sample format for two example CALFED Stage 1A projects which contains the minimum level of detail necessary to form an implementation plan. To these samples CALFED would need to add budget and personnel requirements.

Water Use Efficiency - CUWA supports the concept of a Public Advisory Committee to advise CALFED on the structure and implementation of its assistance programs for water use efficiency.

CALFED is indicating it will pursue the development of mandatory Urban Water Management Plan and Urban BMP Certification processes. While CUWA has suggested acceptable forms of an UWMP certification process and jointly submitted a proposal for an Urban BMP Certification process, CUWA and the Environmental Water Caucus linked support for any BMP certification process on implementation of a CALFED Bay-Delta Program solution.¹ Until a Record of Decision is reached which allows for balanced improvements in all CALFED program areas, CUWA is withholding support for creation of these mandatory processes as described in section 2.4, page 15. Without commitments to improve supplies and reliability beyond the limited but important scope of conservation, there is no incentive to support a regulatory program which will not in itself produce savings.

Maintaining balanced improvement under all Program areas is important. In order to maintain support for the Program, CALFED will need to make a finding under Section 404 of the Clean Water Act, through the Integrated Storage Investigation by the time of a Record of Decision. This finding will need to define the approximate amount of surface and groundwater storage necessary to meet program goals. Regional locations for approximate amounts of this storage must be identified. Without storage to provide water to the Environmental Water Account, provide for the new environmental flows called for in the Ecosystem Restoration Plan and improve water quality and water supplies for all consumptive users above the baseline of the Accord and CVPIA, CALFED's water supply reliability goals will not be met and thus balanced implementation would not occur.

Conveyance - Evaluation of future conveyance improvements which may be necessary to meet drinking water quality goals and fish recovery goals is supported. CALFED should note that conveyance improvements may also be necessary to reduce salinity in order to cost effectively achieve goals for recycling. Evaluations based upon water quality criteria should be reviewed through the Delta Drinking Water Council and should coincide with federal decisions on future drinking water standards which will define feasible alternatives. Thus, formal reviews should occur directly following or concurrent with these federal decisions scheduled for 2002 and 2007.

CUWA appreciates the opportunity to provide input on the CALFED Bay-Delta Program. We look forward to positive progress in the final documentation and implementation of Stage I.

¹ CUWA/EWC Principles Supporting the Joint Development and Advancement of an Urban Water Conservation Framework as Part of the CALFED Water Use Efficiency Common Program, December 3, 1996.

Sincerely,



Byron M. Buck
Executive Director

Attachments (5)

- A. CUWA Suggested Stage IA Projects
- B. Veale Tract Drainage Management Study/South of Delta Groundwater Storage
- C. Letter to Lester Snow, September 22, 1999 CUWA Comments on Phase II Document
- D. Specific Comments by the CUWA on the CALFED Bay-Delta Program Draft EIS/EIR of June 1999.
- E. May 20 Letter from Byron Buck to Lester Snow re Source Water Quality Intermediate Milestone

Attachment A
CUWA Suggested Stage 1A Projects

A. Multipurpose Projects

1. **South Delta improvements:** Obtain necessary permits and implement South Delta Improvement Program, including:
 - a. **8500 cfs Operation at Banks:** In the short-term, complete NEPA/CEQA process and other necessary permitting, design and construction, and begin 8500 cfs operation at Banks Pumping Plant.
 - b. **Joint Point of Diversion**
 - c. **10,300 cfs Operation at Banks:** Complete NEPA/CEQA processes, design, and begin construction of South Delta improvements, to allow operation at 10,300 cfs during Stage 1; with water gains benefiting both the water users and the environment and shared commensurate with funding contributed.
 - d. **Assess impacts** on Mokelumne fisheries and identify mitigation measures.
 - e. **Assess and implement** appropriate and cost effective fish mortality mitigation measures.
2. **Surface Storage:** Continue planning, site selection, and environmental documentation for new off-stream surface storage and expansion of existing surface storage.
3. **Hood Test Screens and Diversion Facility:** Complete feasibility studies and begin environmental documentation. Studies must examine potential impacts on Mokelumne fishery and identify mitigation measures.
4. **South of Delta Improvements:** Evaluate and conduct feasibility studies on potential south of Delta improvements such as the O'Neill bypass and San Luis Reservoir bypass facilities to improve water quality in the California Aqueduct and the San Felipe Project.
5. **In-Delta Channel Improvements:** Plan, design and implement in-Delta channel modifications that protect all in-Delta uses and maximize multiple benefits for habitat, flood conveyance, water quality, and water supply.
6. **Isolated Facility:** Begin planning and feasibility studies, including the collection and analysis of water quality and biological data to determine the need, sizing, and timing of the isolated Facility. The purpose of the studies is to support the ecosystem and water quality decision process to be defined at the time of the ROD.

7. **Financial Incentives** for agricultural and urban water management and recycling projects that exceed local cost-effectiveness criteria
8. **South-of-Delta Groundwater Storage:** Begin construction of at least one new south-of-Delta groundwater storage project.
9. **East of Delta Groundwater Recharge and Banking Project:** Implement a groundwater conjunctive use project in area of the Mokelumne, Calaveras, Stanislaus and Farmington basins.
10. **Funding for Groundwater Basin Modeling,** planning and monitoring in the Central Valley watershed, including implementation of groundwater pilot projects.
11. **Development of an Environmental Water Account** for multiple purpose supply and water quality improvement purposes.

B. Water Quality Improvement Projects

1. **Drinking Water Protection Policy:** *Provide financial and policy level support for the development of a Drinking Water Protection Policy by the Central Valley Regional Water Quality Control Board, working with the State Water Resources Control Board, Department of Health Services, San Francisco Bay Regional Water Quality Control Board, and U.S. Environmental Protection Agency. This policy will include the development of water quality objectives for TOC, TDS, bromide and pathogens, and the development of a management plan to meet the objectives. Development of this policy is important for achieving drinking water quality improvement, and should include the establishment of a coordinated strategy to reduce the water quality impacts of wastewater discharges and other sources of drinking water contamination. In addition, establishing water quality objectives is key to the future development of TMDLs for drinking water parameters of concern.*
2. **Salinity Reduction:** Implement salinity reduction work, including operational changes, modifications to in-delta conveyance, and San Joaquin River salinity management.
3. **Veale Tract and Byron Tract Drainage Management Programs:** Complete the Veale Tract and Byron Tract agricultural drainage management programs.
4. **TOC Reduction:** Conduct comprehensive evaluation and pilot programs for reducing TOC from Delta islands drainage.
5. **Recreational Impacts on Drinking Water:** Investigate the strategies to address water quality impacts of recreation on SWP reservoirs.

6. **Barker Slough Watershed Management Project:** Commit to implement the Barker Slough Watershed Management Program in Stage 1 if on-going studies indicate drinking water quality can be improved through watershed management.
7. **South Bay Aqueduct Watershed Management Project:** Conduct a watershed management project to identify potential methods of improving water quality along the South Bay Aqueduct.

C. Actions to Implement the Drinking Water Quality Improvement Strategy

1. **Sources and Loadings of Drinking Water Contaminants:** Conduct a comprehensive evaluation of the sources and loadings of TOC, TDS, bromide, pathogens, and nutrients to the Bay-Delta system, with the eventual goal of implementing total maximum daily load (TMDL) limits for these contaminants.
2. **Health Effects Studies** – Identify needed public health effects studies to more specifically identify the potential health effects of bromide related DBPs and provide financial and technical support.
3. **Water Treatment Research** – Identify needed studies on brominated and chlorinated disinfection by-product operational controls at water treatment plants and provide financial and technical support to implement incremental improvements as warranted in subsequent sub-stages of Stage 1. Provide financial and technical support to investigate advanced treatment technologies for the removal of TDS, bromide, TOC, and pathogens in urban water supplies.
4. **Alternative Sources of High Quality Water** – Investigate alternative sources of and means of providing high quality water supply for urban users of Delta water and identify legal, water rights, and physical constraints to alternatives.
5. **Operational Modifications** – Evaluate and implement changes in upstream and Delta operations to continuously improve water quality delivered to urban water agencies and improve the quality of water in the Bay-Delta for all beneficial uses without impacting CALFED's goal of continuous improvement in water supply reliability.
6. **Comprehensive Monitoring, Assessment, and Research Program (CMARP)** -- Establish an agreed upon water quality baseline for the Delta and ensure that sufficient monitoring and assessment procedures are in place to monitor drinking water quality parameters at major urban water supply intakes and determine areas where additional improvement in water quality is required.
7. **Review of Data:** Commit to detailed review of drinking water quality and fisheries data, Safe Drinking Water Act regulatory requirements, and effectiveness of all water quality actions during Stage 1 to provide the information needed to support the decision process on the need for an isolated facility or other facilities.

Attachment B
Veale Tract Drainage Management Study
Preliminary draft 7/11/99

Project Description – Agricultural drainage discharges to Rock Slough during wet winters can lead to significant increases in the concentrations of dissolved solids, total organic carbon (TOC), and possibly pathogens in Contra Costa Water District's (CCWD) drinking water supply. Veale Tract, an area of approximately 1100 acres is the largest land area draining to Rock Slough. This project consists of water quality monitoring, a feasibility study to evaluate various alternatives for managing the Veale Tract agricultural drainage, and environmental documentation needed to proceed with construction. Alternative management strategies include relocation of the drain, changing time of discharge to coincide with ebb tide, treatment at a wastewater treatment plant or through wetlands, and construction of a one-way flow barrier to isolate CCWD's intake from the drainage discharge.

Assumptions – The following assumptions were made:

- This project is a mitigation measure for negative impacts of the South Delta Improvement Project on CCWD's water quality.
- The non-structural management actions will not be subject to CEQA/NEPA; they will involve agreements between property owners, the Department of Water Resources (DWR), and CCWD.
- The structural management alternatives will require a negative declaration/environmental assessment rather than an EIR/EIS because all impacts will be mitigated.
- Costs and staffing requirements will be developed before the Record of Decision (ROD) is finalized.

Schedule – This project could potentially be ready for construction/implementation within three to four years. A possible schedule is shown below:

6/00 – 6/01 – Water quality monitoring program
6/01 – 6/02 – Feasibility study to evaluate alternative management options
6/02 – 1/03 – Define project
1/03 – 1/04 – Negative declaration/environmental assessment

Agencies – DWR would be the lead agency for this project. Responsible agencies would be CCWD, the U.S. Army Corps of Engineers (ACOE), and the Central Valley Regional Water Quality Control Board.

Permits – The only identified permit is a Section 10, 404 permit from the ACOE if the preferred management alternative is to relocate the drain.

South of Delta Groundwater Storage
Preliminary draft 7/11/99

Project Description – CALFED has identified a number of potential sites for south of Delta groundwater storage in the Revised Phase II Report and has stated that groundwater storage projects will only be done in conjunction with willing local agencies. CALFED has not conducted any analysis of the feasibility of these sites. This project consists of an initial screening process to identify five to seven potentially feasible sites. This will be followed by a programmatic EIS/EIR that evaluates the five to seven sites and narrows the list down to perhaps three sites that will then be studied extensively in the project specific EIS/EIRs. Assuming that at least one site is found to be environmentally and economically feasible, preliminary and final design will be conducted and necessary permits will be obtained.

Assumptions – The following assumptions were made:

- The Integrated Storage Investigation (ISI) will define the amount of groundwater and surface water storage needed.
- This project would operate under existing water rights and entitlements.
- A Section 10, 404 permit would be avoided by designing the project to not have adverse impacts on wetlands.
- Costs and staffing requirements will be developed before the Record of Decision (ROD) is finalized.
- Matching funds would be provided through the screening process and user funding would be provided for environmental documentation, construction, and operation.
- Beneficiaries will have agreements with local owner.

Schedule – This project could potentially be ready for construction within four to five years. A possible schedule is shown below:

6/00 – 1/01 – Screen alternatives to develop short list
1/01 – 6/02 – Prepare programmatic EIS/EIR
6/02 – 1/03 – Project specific EIS/EIR
6/03 – 6/04 – Obtain permits
6/03 – 1/04 – Preliminary design
1/04 – 6/04 – Final design

Agencies – There could be different lead agencies for the different phases of this project. DWR would be a logical lead agency working with the local jurisdictions in the screening of alternatives. USFWS and DWR could be the lead agencies for the programmatic

EIS/EIR. Local agencies should take the lead along with USFWS for the project specific EIS/EIRs.

Permits – A number of permits would likely be required for this project.

- USFWS may prepare a biological opinion.
- The Regional Board will require construction/grading permits.
- Air Quality Management District/Air Pollution Control District will require permits for gas pumps.
- Caltrans will require highway crossing permits.



CALIFORNIA URBAN WATER AGENCIES

September 22, 1999

Lester Snow, Executive Director
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

CUWA Comments on June 1999 Revised
Phase II Document for the CALFED Bay-Delta Program

Dear Lester:

CUWA is pleased to provide you our comments on the June 1999 CALFED Phase II Document. A copy of this letter is being included with our comments on the Revised Draft EIS/EIR for the Program. CUWA is also developing a "needs list" for the development of a CALFED record of decision which we hope to forward to you in October. We've included some highlights below. Our comments are arranged by subject area.

CUWA believes that CALFED needs to develop specific objectives in each program area to provide measurable benchmarks for achieving the overall program goals, improve on its decision-making process, provide assurances critical for securing urban support, and commit to continuous improvement in all program areas by including a balanced list of Stage 1 projects. In particular, CUWA urges CALFED to adopt long-term and intermediate targets for drinking water quality and salinity, and water supply reliability improvement objectives. CALFED needs to adopt a credible evaluation and decision-making process, and provide affected stakeholders formal and equitable representation. Furthermore, CALFED must provide a comprehensive assurance package to water users that includes regulatory and operating assurances by the time of the Record of Decision. We will provide further details of these suggestions in our "needs list".

CUWA has serious concerns that CALFED's commitment to continuous improvement in water quality will be kept. The Water Quality Program Plan notes potential degradation due to wetland restoration efforts. The source control actions do not appear robust enough to offset degradation due to inland population growth. It is unacceptable to CUWA agencies to potentially receive degraded water quality from the Delta as a result of CALFED actions in Stage 1, before CALFED makes future decisions to begin actions that may or may not reverse this trend. CALFED must also incorporate commitments to the CUWA agencies in the Record of Decision (ROD) to meet our water supply reliability and water quality needs that will be described in the CUWA "needs list". These two elements are imperative in the ROD in order to provide adequate

assurances to the CUWA agencies so that we can maintain our continued support of the CALFED Program

CALFED's Fundamental Program Concepts

CALFED's fundamental program concepts, particularly that of the time value of water, are critically important concepts that should be maintained as core drivers of the program.

The Phase II report notes boldly at page 20 that the lack of comprehensive groundwater management in California will limit CALFED's ability to improve water management in the state. Inasmuch as water management is then linked to ecosystem health and water quality, this lack of management can be said to adversely affect the program's ability to achieve positive change in those areas as well. As an outgrowth of the integrated storage investigations (ISI), CALFED should consider conducting workshops which will identify the impediments to better management of water supplies to serve program purposes the lack of groundwater management creates. Identification of these impediments could then become the basis for actions to address the impediments.

Conveyance

CALFED's conveyance program focuses on meeting fishery and drinking water quality objectives. Conveyance may also be critical in executing the Program's water supply reliability strategy of "increasing the utility of available water supplies" due to the ability of conveyance changes to improve source water quality. The conveyance program should note this linkage.

Water Quality Improvement Strategy

The proposed restoration of wetlands through the CALFED Ecosystem Restoration Program (ERP) may increase the total amount of total organic carbon (TOC) at drinking water intakes, increasing the potential to form disinfection by-products (DBP). Changing channel flows and increasing the amount of tidal waters exchanged with the estuary may increase the amount of bromide in Delta waters, significantly increasing DBP formation. CALFED must ensure that Ecosystem Restoration efforts do not preclude continuous improvement in drinking water source quality, that urban water agencies will not receive degraded water quality as a result of CALFED actions in Stage 1., and that CALFED maintain source quality in areas that currently receive high quality source supplies.

The strategy notes that its purposes are for environmental quality and drinking water quality. Salt loads in water diverted from the Delta bear greatly on the ability of water users to increase the utility of available water supplies. Without lowering the salinity of water diverted from the Delta, projected levels of recycling and enhanced conjunctive use will be uneconomical. While recognized in the Environmental Water Quality Improvement actions list stated on page 42, CALFED should consider

segregating water quality actions for improving salinity under a separate heading of "water quality improvements for water management".

CALFED's long term drinking water quality targets are appropriate. CALFED should adopt similarly specific salinity targets linked to water management objectives. These targets can be structured like the drinking water targets in that they can state a numeric objective and an alternative that achieves the water management objective in a cost-effective way. Additionally, CALFED needs to provide an institutional mechanism to assess progress in meeting salinity targets and alternative means of producing enhanced levels of recycling and conjunctive use. CALFED could develop specific salinity targets under Goal A of the water management strategy (Increase the utility of available water supplies) rather than in the Water Quality strategy. Regardless, linkage between water quality improvements on salinity and water management goals should be strengthened.

CALFED notes the need for studies of alternative sources of water (water exchanges) to facilitate drinking water quality improvement. However, the narrative does not indicate responsibility for the analysis or a timeline for addressing the feasibility of specific actions in a way that can aid in adaptive decision making. Responsibility for assessing the potential for exchanges needs to be defined.

CALFED must also adopt intermediate milestones for drinking water parameters such as bromide and TOC. Intermediate milestones are needed to indicate whether CALFED has achieved its stated goal of continuous improvement in water quality during Stage 1 (the first 7 years) and to ensure that urban agencies treating Delta water can comply with drinking water requirements using cost-effective feasible technology. We reiterate our recommendations that these intermediate water quality milestones be based upon those mentioned in our letter to Lester Snow of May 20, 1999. These were a bromide concentration < 300 µg/L and TOC concentration < 4.0 mg/L by 2002 and bromide < 100-150 µg/L and TOC < 3.5 mg/L by 2005. These intermediate milestones would be quarterly (3-month) averages. It is important to adopt intermediate milestones in order to track short term changes in quality against intermediate benchmarks of continuous improvement and assure that improvement takes place versus degradation.

CALFED should provide financial and policy level support for the development of a Drinking Water Protection Policy by the Central Valley Regional Water Quality Control Board, working with the State Water Resources Control Board, Department of Health Services, San Francisco Bay Regional Water Quality Control Board, and the U.S. Environmental Protection Agency. This policy will include the development of water quality objectives for TOC, TDS, bromide and pathogens, and the development of a management plan to meet the objectives. Development of this policy is important for achieving drinking water quality improvement, and should include the establishment of a coordinated strategy to reduce the water quality impacts of wastewater discharges and other sources of drinking water contamination. In addition, establishing water quality objectives is key to the future development of TMDLs for drinking water parameters of concern.

The CMARP program is identified as the primary vehicle for measuring improvement in water quality. There is no agreed-upon baseline for drinking water source quality in the Delta nor criteria for measuring change and the significance of that change. This program needs to rapidly define baseline water quality in order to have a basis of measurement for the future.

Water Management Strategy

CALFED intends to propose legislation requiring metering or measurement of water use for all water users in the State. While accurate measurement of use is necessary for the more sophisticated forms of conservation measures, CALFED must assess the cost of this and all other such a measured and assess its cost-effectiveness against other water management measures as well as identify funding sources. This tactic should be pursued along a continuum of water saving tactics with the most cost-effective measures funded first.

CALFED notes that linkages and assurances are critical to the process of evaluating and constructing new storage in the CALFED program. It indicates measures of success for the program's Water Use Efficiency and Transfer programs must be defined in an MOA to be executed before the ROD, articulating a Clean Water Act Section 404 compliance strategy. It is important that in defining measures of success for water use efficiency that they be defined such that those who may require the benefits of new storage are not thwarted in receiving its benefits by the lack of efficiency actions of others who do not require the storage. In other words, criteria for determining sufficient progress in water use efficiency should assess appropriate progress in the regions which will benefit from new storage and not tie progress on efficiency to areas which do not benefit, and thus do not have the same incentive to conserve. Additionally, since the Transfers program is largely a program which merely develops information on transfers and relies on voluntary market transactions, specific performance criteria defining any amount of transfers as a prerequisite to 404 permitting are inappropriate.

The Phase II document notes on page 94 that a primary impact concern of in-Delta storage is the loss of agricultural land. CUWA believes that this concern is important but secondary to concerns over the impact of in-Delta storage to drinking water quality, particularly loadings of Total Organic Carbon. Additional treatment costs due to increased loadings of TOC could dwarf economic impacts of loss of agricultural land.

The Preferred Program Alternative

The technical analysis in the EIS/R indicates that the preferred alternative will not meet CALFED's public health protection objectives, at least with respect to bromide. According to the EIS/R, the preferred alternative, with 4.75 maf of storage and a 4,000 cfs Hood diversion, will at best reduce salinity levels (and by inference bromide levels) at Clifton Court Forebay by about 21% on average. The Water Quality Program Plan stresses that WQP actions will only supplement water quality improvements from storage

and conveyance changes, and will not reduce bromide levels at the SWP pumps. It would appear from this analysis that additional water management actions -- whether they be water exchanges, new treatment technology, an isolated facility, or some combination of actions -- will be needed to meet the long-term bromide objective. The Phase 2 Report nevertheless suggests in several places that additional actions might not be needed to meet CALFED's objectives. CALFED must provide technical analysis that supports the suggestion, made on pages 81 and 85 of the Phase 2 Report, that Stage 1 actions could be sufficient to meet CALFED's long-term public health protection objectives.

If CALFED cannot provide credible technical analysis to support the suggestion that Stage 1 actions will be adequate to meet its long-term public health protection objectives, then it must amend the list of Stage 1 actions to include planning activities needed to support a final decision on, and begin implementation of, the suite of actions proposed as options to meet those objectives. If those additional Stage 1 actions will be carried out by agencies other than CALFED, CALFED must identify funding sources or other mechanisms for supporting those actions. For example, to encourage the development of advanced treatment technologies, CALFED must provide funding for the water treatment and desalination research and pilot studies. If CALFED does not provide the technical analysis requested or amend the list of Stage 1 actions to reflect aggressive progress toward CALFED's long-term objectives, then we must conclude that the preferred alternative, as currently described in the EIS/R, will not meet CALFED's long-term public health protection objectives.

Water Use Efficiency Program - CALFED's assurance strategy for urban water conservation is to support certification of urban BMP's by the California Urban Water Conservation Council. CUWA worked with the Environmental Water Caucus to propose to CALFED a framework for that process. Agreement between CUWA and the EWC to support that framework is contingent upon acceptance of an overall CALFED plan acceptable to each organization. While CUWA members have actively pursued the BMPs on a voluntary basis, there are many substantive unresolved issues within the Program that are necessary to close prior to a Record of Decision before CUWA can accept a CALFED decision. Therefore, until such time we have satisfaction that a balanced overall program has been adopted, we will not support a mandatory certification process.

CUWA is concerned that levels of conservation projected to occur under both the No Action Alternative and the Preferred Program Alternative are overstated. According to the Water Use Efficiency Program (WUEP), the conservation expected to occur under the No Action Alternative exceeds that expected to occur through full implementation of the urban BMPs. We disagree with this assumption. Under the terms of the MOU, urban agencies are to implement those BMPs that are determined to be cost-effective from a local perspective. CUWA believes that the planning and technical assistance and financial incentives proposed under the WUEP will be necessary to overcome cost-effectiveness limitations and achieve full BMP implementation. CUWA is currently conducting a study to identify the amount of conservation expected to occur through the

implementation of BMPs that are locally cost-effective and therefore, representative of the conservation potential associated with the No Action Alternative. The study will also look at (1) the level of financial incentives needed to achieve full implementation of the urban BMPs; (2) the potential water savings from emerging water conservation technology; and (3) the incentives required to achieve the conservation potential from emerging measures. This study will help CALFED refine its conservation projections for both the No Action Alternative and the Preferred Program Alternative and identify the financial incentives needed to achieve the Preferred Program Alternative savings potential.

CALFED should consider conducting a study to verify the estimated water recycling with and without the CALFED solution and the level and type of financial incentives needed to achieve this potential. CALFED should also consider the long-term viability of the water recycling programs from a water quality (salinity) perspective. These investigations would be useful in helping CALFED refine its water recycling projections and incentive programs. Agricultural areas may have a very high potential for reuse of urban recycled water and should be encouraged. Additionally, CALFED should consider the potential for using recycled water for environmental enhancement purposes and meeting Delta outflow requirements.

Storage - CUWA believes that a combination of new groundwater and surface water storage is necessary to capture water during high runoff periods to improve Delta water quality, water supply reliability and provide ecosystem improvement. CALFED's modeling runs clearly show that flows required for the Ecosystem Restoration Program reduced the reliability of supplies for other uses. They also show that storage can be developed to mitigate these losses and provide for increased reliability to meet CALFED goals. CALFED needs to define through the Water Management Strategy and Integrated Storage Investigations, the gross amount and general location (north of/south of the Delta) of surface and groundwater storage necessary to achieve Program objectives by the time of the Record of Decision. It is not acceptable to leave this question entirely open throughout the duration of Stage I. Until this threshold decision is made, CALFED should withhold action on a Record of Decision.

Conveyance – The Preferred Alternative indicates that a pilot program for a screened channel between the Sacramento River and Mokelumne would be constructed if the Program measures are consistently not achieving drinking water quality goals. This is an important option which must be retained in the Program. However, as noted above, under our Water Quality Improvement Strategy comments, making such a decision requires a well-defined set of baseline water quality data and criteria for assessing change. Further, such a facility could have significant impacts on Mokelumne River Salmon and the effect of such a facility would need to be assessed and mitigated.

The Preferred Program alternative also includes a “process” for determining the conditions under which any additional conveyance facilities and/or other water management actions would be taken in the future. This process is unduly vague and open-ended, and lacks clearly defined evaluation criteria. More detail on this process

needs to be developed for public comment prior to a Record of Decision. Specifically, the evaluation of how water suppliers can provide a level of public health protection equivalent to Delta source water quality of 50ppb Bromide and 3 ppm TOC should not use the term “best” which is subject to various value-driven interpretations (p. 109). Rather, it should refer to “...how water suppliers can cost effectively provide ...” this level of protection, which more correctly references CALFED’s specific target for drinking water (p. 43).

Program Implementation

CALFED program elements are in widely varying “states of readiness” for implementation. For example, the Levee System program and Ecosystem program are further developed than other important elements such as the water quality, storage and conveyance and transfers elements. Prior to the ROD, CALFED must further develop these elements to ensure that balanced implementation can proceed throughout each stage.

Many program elements are not yet at a level of detail where either meaningful direction can be determined or where specific comment on proposed actions can be made. This is particularly true of the water management elements and the role of surface storage, conveyance decision processes, the Finance Plan and Governance. CALFED indicates a variety of processes to provide further detail on these issues as a Record of Decision is developed. How proposed decisions on these details will be discussed with the stakeholder community and the general public precedent to a Record of Decision is not clear. Notwithstanding comments provided herein, CUWA reserves the right to comment on these elements in the context of support of an overall CALFED decision.

Stage I Actions – Many of the actions described in the Phase II Document require more specificity. CUWA has submitted a more detailed list of Stage I projects we propose for the program. Please see attachments A and the Implementation Plan - Stage I Implementation section of Attachment D to our September 22, letter to Rick Breitenbach, containing our detailed comments on the Programmatic EIS/EIR for this list of projects.

Finance

In order to secure buy-in to CALFED’s beneficiaries-pay principle, each beneficiary must be shown identifiable, tangible and quantifiable benefits in each of the program areas that beneficiaries are expected to pay. CALFED must reconcile the differences in benefits analysis between the draft EIRS/R, the Water Quality Program Plan and the draft finance plan, particularly the lack of technical evidence to support the water supply reliability and drinking water quality benefits referred to in the finance plan.

CALFED cannot equate public financing with user-based financing. While a broad-based user fee may be appropriate in some instances to finance “common property” benefits, it is not a surrogate for public financing sources such as federal and

state appropriations or general obligation bonds. Furthermore, diversion fees assessed to water users can only be supported if they are linked specifically to tangible benefits and are part of a broad, wide-ranging plan that includes public financing.

CALFED must demonstrate that its Program is more cost-effective to “buy-into” than for agencies to seek their own alternative solutions. Furthermore, there must be a nexus between costs imposed by CALFED on urban agencies and both the rationale for and the ability to recover these costs through water service based charges or rates.

Governance

It is imperative that CALFED come to closure on governance issues by the ROD. CUWA, along with other major stakeholders, supports the creation of a joint federally and state chartered oversight entity for overall program coordination, tracking and adaptive management as well as an entity to run the Ecosystem Restoration Program. The latter may be accomplished however, by the appointment of a Chief Restoration Scientist within the oversight entity provided that person is given sufficient authority to direct and coordinate CALFED agencies involved in restoration.

CUWA strongly supports the proposal to establish a Delta Drinking Water Council to advise CALFED on changes needed in the CALFED Program to achieve drinking water quality objectives, and review work by independent expert panels related to drinking water issues. The Drinking Water Council is also tasked with preparing findings at intermediate stages during Stage 1 (2003 and 2007) assessing trends in Delta water quality, trends in treatment technology and regulation and recent findings and summary status of human health effects of disinfection byproducts.

Multi-Species Conservation Strategy

The primary benefit expected by water users from the Ecosystem Restoration Program was provision for recovery of threatened and endangered species and in turn, assurance to water users of reliability of their supplies. We note that the Multi-Species Conservation Strategy for the Program will not provide the level of analysis necessary to authorize “take” of species – critical to water project operational assurances. This authorization will be based on action-specific implementation plans (ASIP) for each action or group of actions within the Program. While we understand the current lack of detail which precludes broad authorization of “take” for the entire Program, we are concerned that the ASIP process will diminish or eliminate water user benefits of the actions. We are concerned the resource agencies will add additional measures to the Program actions they deem necessary for ESA CESA and NCCPA compliance which will eliminate water user benefit. Continued support for the CALFED program is predicated on sharing water supply and water quality benefits with the environment and water users. If water user benefits from Stage I actions are diminished through the ASIP process, little incentive will be left water users to support financing the entire CALFED program.

Clean Water Act Section 404

Our concerns are similar with respect to permitting under Section 404 of the Clean Water Act as with the MSCS and ASIP process. Additionally, we support the development of a MOA to develop a compliance strategy for Section 404. In particular, establishment of performance criteria for alternatives to water storage projects which would represent the limit of practicability for the purpose of Section 404 (b) (1) alternatives analysis is imperative. Such performance criteria must be defined in terms of actions and efforts, not in outcomes such as acre-feet conserved or amount of transfers completed, as outcomes cannot be guaranteed when they are beyond the full control of one party. CALFED must adequately publicize the development of this MOA and allow for significant stakeholder input.

We appreciate the opportunity to provide input on the Phase II Document. We look forward to working with your staff on Stage I of the Implementation Program.

Sincerely,


Byron M. Buck
Executive Director

Attachment D

to California Urban Water Agencies Letter of September 22, 1999 Specific Comments by the California Urban Water Agencies on the CALFED Bay Delta Program Draft PEIS/EIR June 1999

PEIS/EIR Specific Comments

Page iii, par. 9, sent. 1 and 2. Please identify characteristics of “potential actions that could be taken by the program” and the information in this document that enables decisions.

Page iv, par. 2, sent. 1. Please identify substantial changes intended by the program while the program “will not enact changes in law, regulation, or policy, or allow project construction.”

Project Description

Page 1-3, par. 3 and 4. Please define a “long term solution to the fish and wildlife ... problems” and how a “long term program” relates to the solution, as the relationship of these purposes is unclear.

Page 1-7, par. 1. Why is reducing entrainment losses at the export pumps not explicitly mentioned in the list, as this is stated to be a major fish problem in the Delta and is used often as a relationship to evaluate alternatives?

Page 1-20, first paragraph. The last three sentences of this paragraph are vague and could be subject to inappropriate interpretations. We suggest deleting the sentences starting with “If in-stream flows...” replacing them with “The final results of the SWRCB process will need to be incorporated into the various components of the CALFED Bay-Delta Program.”

Page 1-21, Bulletin 160-98 - This references that Bulletin 160 contains estimates of future water demands in California and that modeling for the PEIS/EIR “...considers a range of possible future demands for the No Action Alternative and the Program alternatives. The high end of this range is bound by the most recent demand estimates prepared for Bulletin 160-98 for 2020.” This implies that CALFED has a low end for this range. If so, the low-end number and the source or basis for the low-end future demand estimate should be stated.

Alternative Descriptions

Page 2-1. Chapter 2. Please describe the alternative elimination in terms of fish recovery and the relationships and impacts discussed in Chapter 6 for environmental consequences for fish and aquatic ecosystems. That environmental consequences information does not seem to be carried forward to Chapter 2. Also, please develop the reasoning behind fish recovery not meeting goals, including a disclosure of the environmental consequences information in Chapter 6 that was applied to the develop conclusions regarding fish recovery obstacles.

Page 2-12; Water Transfers Program - CUWA agrees that the additional water cost, if any, of transferring water across the Delta (while still meeting the water quality standards and other

requirements of the State Water Resources Control Board's Water Quality Control Plan) needs to be clearly defined. This is referred to in the PEIS/EIR on page 2-13 and elsewhere as "carriage water." However, the term "carriage water" has historically applied to the additional water cost, if any, of additional south of Delta exports while meeting the M&I standards and Jersey Point EC standard, and has not been applied to other well-defined costs such as transferring additional water at times when, for example, the export/inflow ratio (E/I) is governing.

Page 2-22, par. 2, sent. 1. Please state whether this is the text devoted to eliminating Alternative 2. Also, specify who has the concern, the specific future water quality objectives of concern, why they are believed unachievable, and the adverse effects on fish recovery involved in achieving the water quality objectives. Please describe the types and degrees or levels of harm that amount to adverse effects on the recovery of listed fish species due to actions to achieve water quality objectives. Please explain how incidental take permits or the MSCS relate to this concern and allowable adverse effects on recovery.

Page 2-22, par. 2, sent. 2a. Please briefly state the evidence, with references, that suggests a dual-Delta conveyance may improve export water quality and fish recovery. Does it not appear from information in the PEIS/EIR that fish recovery would be more effective under the dual-Delta alternative than the Preferred Program Alternative (PPA), because the dual-Delta alternative would reduce entrainment via a relocated intake, and increase productivity and species movement via reestablishment of net natural flow directions? Are not these entrainment indications confirmed by mass tracking (Tables 5.2-7 and -8) model data, which indicate more particle entrainment at Hood is balanced by less entrainment at south Delta facilities of Vernalis particles or central Delta particles, and that together there would be less entrainment than with the PPA. Doesn't the QWEST model data (Figures 5.2-46, -64 and -65), also indicate more net natural downstream flow direction, especially if the PPA has no Hood diversion? It would help to understand the flow direction effects and the potential to increase productivity, to have figures showing the estimated flows under the various alternatives.

Page 2-22, par. 2, sent. 2b. How much less effective does CALFED expect fish recovery to be with the PPA than the dual-Delta alternative?

Page 2-22, par. 2, sent. 2c. Please disclose the potential in-Delta water quality problems involved, how they would be caused, and why they are not mitigable. Please disclose why it is reasonable to sacrifice potentially more effective fish recovery and improved water quality for domestic and agricultural use locally and elsewhere, for the potential in-Delta water quality problems.

Page 2-22, par. 2, sent. 2d. Please disclose how results of the CALFED Diversion Effects Fish Team draft report, dated June 25, 1998, were applied to the PEIS/EIR alternatives evaluation. The DEFT report was an effort of several technical experts to evaluate CALFED's alternatives. The DEFT evaluated salmon, striped bass and Delta smelt, and concluded that Alternative 3 was best for salmon and perhaps for Delta smelt (high uncertainty), but that no alternative would restore the striped bass. For salmon, the report indicates Alternative 3 scores the most points for the Sacramento River chinook when new storage is considered, and is about tied with Alternative 1 without new storage. Improved interior Delta survival makes a difference here. For San

Joaquin salmon, Alternative 3 scores the most points, with its entrainment reduction and improved interior Delta survival having the larger differences with other alternatives.

Page 2-22, par. 2, sent. 3. Please explain the impacts of the following:

- Construction impacts that are not mitigable.
- Land use needed for the facility given all of the land being taken out of production elsewhere for restoration to more effectively achieve recovery of listed fish species.
- The specific non-structural modifications and reoperations of existing facilities that more effectively achieve the recovery of listed fish species than the dual-Delta alternative.

Page 2-22, par. 3. Disclose the rationale for not more aggressively studying such a facility within the first stage?

Page 2-22, par. 4, sent. 1. Explain “In the light of the technical and feasibility issues discussed above....” Please disclose the trade-offs and logic regarding these issues that occurred at CALFED in this light.

Page 2-22, par. 4, sent. 2. Please explain why a path to “achieve fish recovery more effectively” abandoned for at least four to seven years. Also, the PEIS/EIR should disclose the fishery recovery goals and what prevents a determination at this time based on all the impact and mitigation information, that they cannot be met. Please explain what happened to all of the Section 6.1 environmental consequences assessment information in this alternatives evaluation and selection.

Page 2-22, last par., sent. 2. Please disclose the specific “additional information” such as field data, modeling results, or concurrence, that needs to be available to determine whether fish recovery goals can be met within the first four years of Stage 1, or thereafter. Please specify what amounts to a determination that fish recovery goals can be achieved, and what assurances there are that such a determination can be or will be made at all within the Stage 1 period. Please state who will provide this information, who will make the determination, and by when. Please explain why is it reasonable to expect within Stage 1 the availability of such new information or the determination that the fish recovery goals can be achieved, given the years and decades of existing data and analyses, and the lack of a determination on achievement of recovery goals. Please explain how the “best alternative” is the one that prolongs; a) more effective fish recovery, and b) solving the fish and wildlife problems in the Delta per the Accord.

Page 2-26; Configurations 2D and 2E. The reasons for elimination of Configuration 2E are said to be the same as for Configuration 2D. However, the discussion under Configuration 2D does not clearly state those reasons. Configuration 2E, which includes increases in channel width and inundation of portions of some Delta islands throughout the Delta to provide additional ecosystem habitat and conveyance capacity, is similar to the through-Delta conveyance alternative proposed by the California Urban Water Agencies in 1996. CUWA believes that widening conveyance channels to provide additional shallow water habitat and reduce any potential transport of fish toward Delta diversion points still has merit and should not be excluded from consideration.

Summary Comparison of Environmental Consequences

Page 3-7. Please include and address, or explain why exclusion is justified, for the following projects not apparent in the list:

- US Army Corps of Engineers Comprehensive Flood Control and Ecosystem Study, affects both the Sacramento and San Joaquin drainages.
- State Water Resources Control Board's Bay/Delta Water Quality Control Plan hearings may result in upstream water uses in conflict with CALFED's watershed program.
- Metropolitan Water District of Southern California's conservation and recycling programs where service area streams will no longer be supplied with wastewater discharges.

Guide to Impact Analyses and Description of Land Use Assumptions

Page 4-13. The Draft PEIS/EIR states that CALFED is currently considering 12 new surface storage projects. Three involve enlargement of existing storage reservoirs: Shasta (increase of 6.5 feet to yield an additional 290,000 acre-feet), Friant Dam (an additional 720,000 acre-feet), and Los Vaqueros Reservoir (up to an additional 965,000 acre-feet). As discussed in CCWD's July 28, 1998 letter to CALFED (Walter J. Bishop to Lester Snow), CCWD has developed as set of principles regarding CALFED's consideration of an expanded Los Vaqueros reservoir. Prerequisite consideration of any proposal for use by CALFED of CCWD's Los Vaqueros or Kellogg watershed sites, CALFED must ensure and assure that:

1. the project will improve water quality and reliability for CCWD
2. the project will enhance the Delta environment
3. the project will protect and enhance the fisheries and terrestrial species benefits provided by CCWD's existing Los Vaqueros Project
4. the project will preserve and increase the recreational opportunities of the existing Los Vaqueros Project
5. CCWD will retain control of the watershed and operation of the reservoir
6. the project will protect and reimburse the financial investment made by the CCWD customers who financed the existing \$450 million Los Vaqueros Project
7. the project has the full support of the residents of Contra Costa County

Water Supply and Water Management

Page 5.1-1, first paragraph: The document states that the primary water supply reliability objective is to reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system. The document needs to describe the reduction in water supply and reliability resulting from actions prior to what has been defined in the existing conditions. There is no reference to the imbalance between the environment and water users created by the Endangered Species Act, Bay-Delta Accord, and CVPIA. All of these actions were included as part of the existing conditions with no reference to the decrease in reliability and supply available to the water users.

Page 5.1-6, fifth paragraph: The confluence of the Sacramento and San Joaquin River is at Collinsville (81 km).

Page 5.1-20, top paragraph: The document states the Program is performing economic assessments to identify cost-effective combinations of strategies (i.e. conservation, recycling, etc.) that meet the Program's water supply reliability objectives. This study and its outcome are vital to determining the level of implementation afforded under the Program. The EIR/EIS needs to include these assessments and further information related to the outcome of the study being performed before a final determination can be made.

Page 5.1-21: Reclamation's proposed decision on managing the CVPIA's 800,000 af dedication to fish and wildlife was released on July 15, 1999 and is expected, notwithstanding current litigation, to be final prior to the Record of Decision. The Final PEIS/EIR should reflect this decision.

Page 5.1-21, second paragraph: CALFED refers to Criteria A and B as boundaries for a range of possible Delta hydrologic patterns in the programmatic analysis. The additional environmental measures in both criteria lack scientific basis and do not accurately reflect a potential range of hydrologic patterns. A balance between the environment and the water users is not attained.

Page 5.1-21, last paragraph: CVPIA actions are included in the existing conditions and no-action alternatives. As mentioned above, there is uncertainty as to how the (b)(2) water will be considered for accounting purposes. There is a potential for a much larger impact, dependent on the decision. The baseline quantity of water for the projects is reduced before the start of the process and no tools are identified to restore any loss of supply. CALFED should again acknowledge the baseline water supply is less than prior to the Accord and CVPIA. Due to wet conditions, this loss has been relatively unnoticed and due to changes in the baseline as may be determined relative to how (b) (2) water will be adjudicated that supplemental environmental documentation may be needed to more accurately assess supply impacts of the Program.

Page 5.1-23: Summary of Modeling Assumptions, Water Management Criteria. Criterion A states that EBMUD diversions are modeled at Nimbus "as defined in the EBMUD Supplemental Water Supply Project (maximum 115 KAF/yr)." EBMUD's Nimbus diversions in the SWSP are in fact modeled at 150 KAF/yr, which is consistent with both EBMUD's 1970 CVP contract, as well as the draft Amendatory CVP contract. Acknowledging deliveries for EBMUD's Supplemental Water Supply Project is appropriate in the analysis.

Page 5.1-24, first paragraph: CALFED states that because ecosystem protections provided in Criterion A exceed those included in the Accord and CVPIA, changes in interpretation of Section 3406 (b)(2) would not affect the Criterion A assumption set. As mentioned above, at the current time there is uncertainty as to how the (b)(2) water will be accounted. However, the strict interpretation of the July 1999 (b)(2) accounting methodology proposed by DOI has the potential of exceeding Criterion A.

Page 5.1-26: No action alternative – Discussion should be added which notes that the no-action reliability levels are much lower than reliability experienced prior to 1990's due to the fact the no-action alternative incorporates new restrictions to supply (Accord, CVPIA, ESA, etc.)

Page 5.1-30, last paragraph: Under existing conditions, the Program assumes that the Eastside Reservoir and the Coastal Aqueduct are not operating. The Program does not state what the assumption is for Criterion A. However, Criterion B does assume the facilities to be operational. Eastside Reservoir is to begin receiving SWP water at the end of this year. DWR began making deliveries via the Coastal Aqueduct in 1998. Both of these facilities should be included in existing conditions and both criteria since they could influence the demand patterns.

Page 5.1-31: Primary water quality constraints are TOC not DOC

Page 5.1-32, first paragraph: The document states that the Ecosystem Restoration Program would result in additional water use in the Delta due to new flow targets and conversion of land to wetlands. It is not stated whether the source of the water will be purchased supply. If it is not purchased water for the ERP, there will be an impact on water supply and reliability. The impact to water users should be quantified.

Page 5.1-34 (end of page) "Water transfers from areas upstream of the Delta to areas south of the Delta would impact Bay supplies since it would be necessary to modify water diversion schedules possibly augmenting water delivery opportunities." This is not clear and is incorrect. With respect to Bay outflow, there should be no change as the transferred water would otherwise have been consumptively used (a requirement for the transfer to be legal). Bay standards are controlling and any transfer must not affect outflow.

Page 5.1-35: Implementation of the Ecosystem Restoration Program is said to result in beneficial effects on water supply within both the Central Valley rivers and the Delta. This should be modified to state beneficial effect in terms of supply available to the ecosystem in order to be consistent with the statement at the end of the paragraph noting negative effects on supplies available for diversion. In the first paragraph, the document states that the Ecosystem Restoration Program would result in additional water use in the Delta due to new flow targets and conversion of land to wetlands. Additionally, it states that water supplies available for diversion from rivers and the Delta will be reduced. It is not stated whether the source of the water will be purchased supply. If it is not purchased water for the ERP, there will be an adverse impact to water supply and reliability for other water users. There is no quantification of the impact to water users.

Page 5.1-35: The second to the last paragraph correctly notes that conserved supplies may not result in lower statewide demands and an example of the potential effect in a reduction in demands in the South Coast is used. Additional discussion should be added to indicate that reduced demands in the San Joaquin Valley in drier years may also not lower net demands in the Valley upon surface water in those years, rather it would lower the amount of groundwater overdraft.

Page 5.1-35: The third paragraph under Water Use Efficiency notes that the potential may not exist to completely replace the water supply reliability and water management flexibility of other water management tools. This discussion should be expanded to include the concept of economic efficiency. While it may be theoretically possible to reduce demands enough to account for the 15 million addition Californian's expected in the next 30 years and eliminate

current unmet demands, CALFED's Economic Evaluation of Water Management Alternatives clearly shows it is not economically efficient. The cost of more aggressive water conservation measures greatly exceed the cost of other water management tools.

Page 5.1-36: The discussion of the effect of the Watershed Program on supplies correctly notes that the effects are likely to be small over the entire study area. However, the analysis focuses mainly on impacts that tend to reduce runoff. Discussion should be added that integrating a return to natural forest conditions, where periodic low-intensity fires minimize shrub-like vegetation, and timber harvest patterns, e.g. harvest which takes into account snow pack retention, can result in increased runoff.

Page 5.1-36,37: The document notes that meeting Delta flow targets could affect water supply within the SWP and CVP Service Areas. This impact would be unacceptable. Flow targets required for the Ecosystem Restoration Plan should come from voluntary transfers or sales to the Environmental Water Account and should not result in uncompensated takings of water, i.e. significant redirected impacts.

Figures 5.1-35 and Figure 5.1-36: The graphic symbols for Alternative 3 –Criterion A without Storage and Alternative 3 –Criterion B without storage are identical in the legend. The two lower legend indicators should be with storage, not without storage.

Water Quality

The PEIS/EIR outlines a variety of actions to improve source water quality, including two drainage management projects to improve water quality at Contra Costa Water District's intakes. These are the Veale Tract project (agricultural discharge into Rock Slough near the intake to the Contra Costa Canal) and Byron Tract project (agricultural drainage by Reclamation District 800 near the Old River intake). These two projects are included in CALFED's South Delta bundle of actions and are intended as mitigation for potential water quality impacts of the proposed south Delta agricultural barriers and proposal for joint points of diversion for the State Water Project and Central Valley Project from the south Delta.

We strongly recommend that these drainage management and source water quality projects go forward as they will result in direct and significant improvements to the quality and reliability of CCWD's water supply. CCWD is already devoting staff resources to assist CALFED in developing these early-implementation projects and has begun meeting with CALFED and stakeholders to develop alternatives for preliminary screening.

Page 5.3-2, Preferred Program Alternative – This section does not contain any discussion of the impacts of the Preferred Program Alternative on the North Bay Aqueduct water quality. The impacts on all Delta export and diversion locations need to be analyzed. There should also be a discussion of the potential impacts (increased TOC) resulting from the Ecosystem Restoration Program.

Page 5.3-4, Mitigation Strategies #1 – Total dissolved solids is excluded from the list of constituents of concern that should be addressed through improved treatment at wastewater treatment plants. While TDS likely cannot be directly or cost-effectively controlled at the

treatment plant, TDS is a significant constituent of concern that must be included in this list. Source control and offsetting increasing loads to treatment plants due to transfers and conservation should be considered.

Page 5.3-4, Mitigation Strategies #2 and #3 – Releasing water from storage reservoirs to improve water quality should only be done if there is no cost in water supply reliability.

Page 5.3-3, Areas of Controversy – An additional area of controversy that should be discussed in this section is the future of drinking water regulations and the ability of water agencies to meet those regulations with existing and more advanced treatment technologies.

Page 5.3-5, TOC Drinking Water Concerns – There are other significant “factors that are currently unknown” that should be described in this section. We do not currently have adequate knowledge of the existing or baseline concentrations of TOC at key locations in the Delta and the tributaries. We do not have data on the loads of TOC from the various sources and we do not know the extent to which any of the CALFED actions can reduce TOC at the Delta pumping plants.

Page 5.3-7, Activities and Sources That Affect Water Quality in the Delta – In the last paragraph on the page there is discussion about the production of DBPs after disinfection. This is an important water treatment issue but DBPs are not formed in the Delta. This subject does not belong in a section on in Delta water quality.

Page 5.3-8, Activities and Sources That Affect Water Quality in the Delta, second paragraph – Industrial and municipal wastewater treatment discharges are not regulated for TOC and pathogens, two very important constituents of concern for drinking water.

Page 5.3-8, Activities and Sources That Affect Water Quality in the Delta – This list should include dairies and other confined animal facilities as contributors of nutrients, pathogens, TOC, and TDS.

Page 5.3-9, Beneficial Uses, Water Quality Objectives, and Pollutants of Concern – While it is accurate that many water quality objectives for environmental beneficial uses are more stringent than their corresponding drinking water objectives, there are also drinking water standards for some constituents (TOC, TDS, pathogens) for which there are not corresponding environmental objectives.

Page 5.3-9, Factors That Affect Variability of Water Quality in the Delta – High flow conditions typically occur during the winter/spring and low flows occur during the summer/fall.

Page 5.3-10, Table 5.3-1 – “Nutrients” should be revised to include nitrate, nitrite, ammonia, organic nitrogen, total phosphorus, and soluble reactive phosphorus. This change was recommended by the Parameter Assessment Team on 1/28/98 and approved by the Water Quality Technical Group on 2/25/98.

Page 5.3-10, Water Quality Issues in the Delta – This list should include a discussion of the potential degradation in Delta water quality that will occur as a result of the population growth in the Central Valley and the increased wastewater and storm water discharges related thereto.

Page. 5.3-23, Consequences: Program Elements that Differ Among Alternatives. CALFED fails to address the increased mercury methylation potential caused by the habitat restoration proposed under CALFED's preferred alternative, as well as the other alternatives. There is increasing data (including USGS data from the Bay-Delta) that shows shallow water bodies with long detention times and vegetation have substantially higher levels of methylated mercury, the form of mercury that it bioaccumulated by aquatic species and poses the greatest threat to human and ecosystem health. The report does not mention this relation and possible result of implementing the CALFED program (although it is alluded to in the Water Quality Program Plan). CALFED should include a description of the relation between ecosystem type and methyl mercury formation potential.

Groundwater

Page. 5.4-4, Groundwater - A series of stakeholder questions is listed, including: Who controls groundwater extractions? Who allows water to be transferred and under what authority? How are mitigation of impacts carried out? The only response provided is a short statement that "The Program is developing guiding principles." Developing acceptable answers to these questions will determine whether or not groundwater plays an important role in the CALFED Program. EBMUD has been working with San Joaquin County interests on some of these difficult issues for years with only limited success. Review of CALFED's "guiding principles" and opportunity for meaningful stakeholder input are necessary prior to the Final EIR/EIS and ROD. Much effort and participation by key stakeholders and officials is needed to move forward on these questions.

Page. 5.4-2: The table of "Potentially Significant Adverse Impacts and Mitigation Strategies" appears incomplete. Recommended additional cross references include:

- Changes in groundwater levels -- add 12, 15, 19
- Increased demand for groundwater supplies -- add 5, 6, 9, 13, 15
- Increased degradation of groundwater quality... -- add 12
- Impacts from groundwater recharge and storage system operations -- add 4, 6, 7, 8, 10, 11, 12, 15, 16, 18

Page 5.4-28: In the discussion of Bay Region groundwater development, the document states that "Increased groundwater use probably would occur mainly in rural areas..." As part of its groundwater storage planning, EBMUD is evaluating groundwater injection, storage, and recovery in urbanized portions of its service area.

Page 5.4-39: The last full paragraph states that "Groundwater storage programs typically would be operated to store water before it was extracted. This type of operation would result in a net long-term decrease in storage relative to the No-Action Alternative." Since water is being stored, water storage should in fact increase storage.

Page 5.4-40: The first full paragraph says that in-lieu recharge is “through deep percolation of applied irrigation water.” In-lieu recharge in fact is supplying current groundwater users with a surface water supply which allows natural recovery of the basin through lower extractions.

Biological Environment

Page. 6.1-15, par. 3, sent. 2a. Please explain how the fisheries and aquatic ecosystems relationships used for the assessments in this chapter “are based on the best available information.” This PEIS/EIR impacts section contains no references to the fisheries and aquatic ecosystems scientific literature for 1999 or earlier besides a March 1998 draft Technical Report. That technical report contains no scientific literature references for 1998, one for 1997, and only four for 1996. There are dozens of scientific papers on Delta fish and the aquatic ecosystem during these years in addition to numerous articles in the IEP newsletter, as evidenced by the attached list.

Page. 6.1-15, par. 3, sent. 2b. Please disclose the data, graphs, statistics, and references to demonstrate or support the relationships.

Page 6.1-15 through 6.1-30. Please explain how the relationships of the aquatic ecosystems and species responses to program actions, and associated significance criteria reasonably reflect substantial and significant adverse effects, over the range of measured or modeled physical or other factors that change between alternatives. Disclose or reference CALFED checks of the response relationships for significant or reasonable responses to program actions expressed as the modeled and measured data. Disclose any references used.

Page 6.1-15, par. 1, sent. 3. The PEIS/EIR should disclose the hypothetical relationships and justify their use in setting the direction and content of CALFED’s program.

Page 6.1-15, par. 3, sent. 2. The PEIS/EIR should go on to disclose how in spite of “a high degree of uncertainty relative to action and response mechanisms,” these relationships were still useful in relating program actions to responses and significance, and in discriminating comparisons of impacts among alternatives and to existing conditions.

Page 6.1-15. The PEIS/EIR should disclose how these particular action-response relationships are the reasonable ones, including any references.

Page 6.1.15. The PEIS/EIR should disclose what relationships are really useful for establishing significant adverse impacts after the uncertainty and counter-balancing forces are addressed. These relationships descriptions are often too confounding to understand how fisheries and aquatic ecosystem effects were determined and how those effects could influence alternative selection.

Page 6.1-15. The PEIS/EIR does not appear to present a fish recovery relationship to program actions. However, the PEIS/EIR refers to fish recovery when justifying selection of the preferred alternative in Chapter 2. Please explain the relationship of fish recovery to program actions and environmental consequences.

Page 6.1-16, par. 1, bullet 1. Explain what are natural pattern and magnitude. State whether a natural pattern means peaks and lows at unimpaired flow times, and whether magnitude applies to annual extremes or smaller time steps. These are unclear as presented.

Page 6.1-16, par. 3, sent. 3. The PEIS/EIR should state whether historical pre-1944 low-flow salinity intrusion is envisioned or proposed.

Page 6.1-17 and 6.1-18. The PEIS/EIR should disclose CALFED's perspective on Delta water diversion locations and exports, and nutrient input to the Delta.

Page 6.1-20, par. 2, sent 1. Explain why reduced contaminant input is the primary avenue for reactivating and maintaining ecosystem process and structures that sustain healthy biota. Explain why other processes not of equal or greater importance.

Page 6.1-24, last bullet. The PEIS/EIR should include the relocation of diversions to areas of less density as well as beyond a species distribution.

Page 6.1-25, second bullet. The PEIS/EIR should include reoperations of diversions to minimize a species' exposure.

Page 6.1-28, par. 5, sent. 2. What is "fitness of natural and spawning populations?"

Page 6.1-29, par. 3. The PEIS/EIR should disclose the relationship of program actions to species response, not just give a "fitness is okay" criterion. This discrete criterion is inconsistent with the rather continuous nature of other relationships. How many is too many harvested. What difference do different harvest levels make to the recovery of listed species? Is this not the primary avenue for reactivating and maintaining ecosystem process and structures that sustain healthy salmon populations in the Bay/Delta, as over half of the population, let alone what proportions of listed runs, is harvested before it can spawn?

Page 6.1-30, par. 1, last sent. Please explain why halting or reversing downward trends in native species is compared to existing conditions but not to the No Action Alternative.

Page 6.1-30, par. 2. Please explain what "substantially" and "degrades" mean in each of these criteria where they are used. Please explain how much substantial effect is considered significant, or that it is any effect at all if this is the case. Supply references used.

PEIS/EIR Page 6.1-30, par. 2. The PEIS/EIR should disclose how fish recovery goals, which are used to explain away alternatives, relate to these significance criteria. The discussion of the harm criterion should include how incidental take permits can be issued for lawful activities.

Page 6.1-30, par. 2, last sent. Please define "considerable effects."

Page 6.1-50, par. 1, sent. 2. Please correct the apparent inconsistency of this suggestion that with the modeled data in Figures 5.2-26 and 5.2-46, which indicate more positive and less negative QWEST with Alternative 3 or the PPA than with No Action. Why not also say that Alternative 3 is better at avoiding reverse QWESTs than the PPA, per Figures 5.2-26, -46, -64, and -65? Please explain why the speculation on increasing reverse QWEST contrary to the modeled data, and the

adverse effects of decreased productivity, increased entrainment, and impaired movements, is consistent with the modeled data approach stated in the Assessment Methods (PEIS/EIR Page 6.1-15).

Page 6.1-50, par. 3. Why are habitat structure and degradation effects maybe mitigable for dredging the Mokelumne River channel (PEIS/EIR Page 6.1-53, par. 3, last sent.) but are definitely mitigable for dredging Old River channel?

Page 6.1-50, par. 3, last sent. Please disclose the feasible mitigation measures, and the assurances and levels for mitigation to less-than-significant levels, for Delta channel dredging. Please describe the potential impacts of these mitigation measures.

Page 6.1-51, par. 1, last sent. Please disclose the feasible mitigation measures and the assurances, and levels for mitigation to less-than-significant levels, for south Delta intake facilities. Please describe the potential impacts of these mitigation measures.

Page 6.1-52, par. 2, sent. 4. Please list the "other factors" that would reduce survival.

Page 6.1-52, last par. Please state what is "To the contrary," as it is unclear. No adverse effects are mentioned in the paragraph for the lower net flow in the Sacramento River lower net downstream flow above the Rio Vista criterion. Are changes that stay within criteria considered significant adverse effects? Why are the potential effects mentioned for Alternative Three not mentioned here?

Page 6.1-52, par. 2. Please offer an explanation that demonstrates more of an increase in the proportion of Sacramento River flow entering Georgiana Slough. Why would the Georgiana Slough proportion not decrease since less Sacramento flow approaches the Georgiana Slough split and the mainstem channel-Georgiana Slough flow split would remain the same. Further, there is a great deal of mixing in Sacramento River, so would not the cross-channel distributions of fish remain the same as if the Hood diversion was 0 cfs.

Page 6.1-53, par. 2, sent. 2. Please specify whether these focused studies have to determine that significant adverse impacts, i.e., entrainment risk and predation are avoidable, and that habitat use is understood, before the Mokelumne setbacks can be built and maintained under any alternative. State what is enough to learn about habitat use to allow setback construction.

Page 6.1-53, par. 3 and 4, last sent. Please disclose the feasible mitigation measures and the assurances, and levels for mitigation to less-than-significant levels, for the Hood to Mokelumne channel setbacks or dredging. Please describe the potential impacts of these mitigation measures.

Page 6.1-53, par. 3. The PEIS/EIR should note that dredging impacts are short-term except for ecosystem structure changes. Was the Mokelumne River deeper naturally?

Page 6.1-55 and 56. Please disclose why Alternative 3 cannot be done in phases, starting now, rather than simply writing off potential adverse effects as significant unavoidable impacts.

Page 6.1-55, par. 1, sent. 2. Channel enlargement impacts causing more entrainment than No Action via greater reversed flows, are not the same as for the PPA (page 6.1-50, par. 2). Mass tracking results indicate less entrainment of particles released at Prisoner's Point or Vernalis, under high or low inflow conditions, with Alternative 3 than with the PPA, Alternatives 1 or 2, or No Action, due to reversed flows (Tables 5.2-7 and 8). In fact, the particle entrainment estimates for Alternative Three versus the PPA under high inflow conditions were 0 versus 51 percent and 40 versus 96 percent, for Prisoner's Point and Vernalis releases, respectively. Under low inflow conditions, respective estimates for Alternative Three versus the PPA were 7 versus 81 percent and 6 versus 82 percent. Alternative Three would entrain much less than the PPA. Does CALFED consider these estimates as indications of similar impacts?

Page 6.1-55, par. 1, sent. 2. Please explain how Alternative Three impacts due to DCC operations, Delta channel capacity, and south Delta flow control barriers are unavoidable, while the Preferred Alternative has them as contingent on monitoring and studies that demonstrate avoided impacts.

Page 6.1-56, par. 2, sent. 3. The PEIS/EIR is addressing the productivity effects of all alternatives based on March, long term 1-km increases from No Action, and all floating between 64 and 66km (Figure 5.2-70). Please explain how a X2 increase of 1km or from 65 to 66 km would probably have a significant adverse effect on productivity, migratory species, and species movement. How would the change weigh against productivity gains from natural net flows reestablished in the central and southern delta, including San Joaquin and Old river?

Page 6.1-56, par. 2, sent. 2. What does "potentially increases reduced flow" mean? Is this indefinite, which flow, and is the flow going up or down?

Page 6.1-56, par. 2, sent 4. The PEIS/EIR should disclose how migratory species in particular, are "adversely affected," as the text is unclear.

Page 6.1-56, par. 2, last sent. Please explain how impacts can be unavoidable if they are only potential impacts, which seems to imply that the impacts may not occur or be significant.

Page 6.1-58. Please address the indirect impacts on southern California streams that would no longer receive wastewater redirected for further treatment and reuse due to shortfalls in source water supply due to CALFED's program.

Compliance with Applicable Laws, Policies and Regulatory Framework

Page 8-3: The Multi-Species Conservation Strategy should entail more than a framework for obtaining compliance with federal and state ESA. Some certainty should be provided prior to the Final EIR/EIS and ROD regarding how CVP and SWP operations will be treated under ESA during Stage 1. Lack of certainty in this area will cloud implementation of other parts of the CALFED program.

Page 8-5: The USFWS should publish its Fish and Wildlife Coordination Act findings and recommendations in advance of the Final EIR/EIS for stakeholder review. This report should

have been included in the Draft EIR/EIS as USFWS is one of the lead federal agencies (Page 1-3). How will CALFED resolve potential inconsistencies between USFWS recommendations and the assumptions used in the Draft EIR/EIS?

Page 8-6: The programmatic assurances for evaluating CWA §404 compliance and the referenced MOA among the Corps, EPA and others should be provided for stakeholder review prior to the Final EIR/EIS. Water agencies will be keenly interested in the development of performance criteria and limits of practicability for alternatives to surface storage and have special expertise in this area. The federal agencies should solicit early input and review of materials developed for this effort.

Public and Agency Involvement

Page 10-8, Bromide Panel: Section 10.1.15 states that the Bromide Panel met and published a report. It would be useful if CALFED included some brief summary of the Bromide Panel findings/recommendations and how that has led to drinking water goals and the formation of the Delta Drinking Water Council.

Page 10-9, Water Use Efficiency Work Group: This workgroup was “retired” even before BDAC consultants were brought into the picture and should be referred to in the past tense.

Page 10-10, Finance Work Group: CALFED should expand its discussion and review of potential user fees, beyond considering only water users, which has been considered.

Page 10-10 to 10-11, Assurances Work Group: This section should note that the Assurances Work Group is now the Governance Work Group. In fact, more description should be given about this Work Group’s role in developing recommendations on a variety of governance issues, e.g., oversight entity principles, program implementation functions, organizational options, etc.

PEIS/EIR Attachment A

Page A-2, last paragraph: CVPIA actions are included in the existing conditions and no-action alternatives. As mentioned above, at the current time there is uncertainty as to how the (b)(2) water will be accounted. There is a potential for a much larger impact, dependent on the decision. The baseline quantity of water for the projects is reduced from the beginning and no tools are identified to get back any loss of supply.

Page A-4, Footnote 1: The program does not use land retirement as a tool to increase water supply. The no action alternative should take into account any reduction in water use resulting from land retirement.

Page A-4, Footnote 6: While it is agreed that additional species might be listed prior to 2020, the program must recognize that any reduction in operational flexibility impacts the ability to operate to future listed species.

Table A-5, Proposed Ecosystem Restoration Program (ERP) Flow Targets. Scientific support should be provided for the 10 day Nimbus releases in March (3500 cfs dry to 7000 cfs wet).

This should only be characterized as an experimental program without scientific support. EBMUD has participated in numerous scientific efforts on the lower American River and is not aware of the basis for the specific flow targets called for.

Page A-9, first paragraph: CALFED refers to Criteria A and B as boundaries for a range of possible Delta hydrologic patterns in the programmatic analysis. The additional environmental measures in both criteria lack scientific basis and do not accurately reflect a potential range of hydrologic patterns. The balance between the environment and the water users is not presented.

Page A-9, second paragraph: We do not agree that the assumption that future increases in demand could or should be met with alternative supply or demand management options is a reasonable one. Even though this is a representative bookend, the document should clearly state that it is not offered as a policy assumption.

Page A-21. Please disclose the rationale behind the proposed ecosystem restoration target flows, including the months, durations, and flows.

Page A-24. Please disclose the rationale behind the Alternative 2 assumptions for Hood diversions under criteria A and B, as their disclosure is not apparent.

Page A-26. Please disclose the rationale behind the Alternative 3 assumptions for item 3, isolated facility diversions, under criteria A and B, as their disclosure is not apparent.

Page A-27. Please disclose the rationale behind the PPA assumptions for item 3, Hood diversions, under criteria A and B, as their disclosure is not apparent.

Page A-34, Cumulative Impacts: The Pardee Reservoir Enlargement Project is one of the projects listed and could still be implemented in the future. Including it within the qualitative cumulative analysis is appropriate.

Urban Water Supply Economics

The PEIS/EIR presents two methodologies to investigate economic impacts of the proposed programs. The first approach uses the methodology presented in the CVPIA PEIS/EIR, which analyzes the result for an average year, and then applies the resulting supplies to a dry year. This approach does not reflect the effect of longer-period droughts on local storage. Agencies that have considerable storage might appear to have sufficient water supplies, when in fact a supply shortage of three or more years would severely strain these resources. This was demonstrated in the 1987-1991 drought, when severe hardships were only felt in the later years. An economic analysis of urban water supplies must examine a full hydrologic sequence to estimate both the yield available from new supplies and the impact on urban water agencies.

The LCPSIM model (the second analytic approach used) does include this necessary hydrologic sequence, but the results still do not appear to reflect the effects of the shortage levels presented in the CVPIA *Supplemental*. The DWRSIM used in this analysis should be cross-checked with the CVPIA *Supplemental* results. The reliability levels reflected in the two studies should either

be consistent, or the reason for any inconsistency clearly explained. The use of a different simulation model is not adequate explanation.

In addition, the data used in the analysis are neither adequate nor well-documented. For example, on page 7.5-39 and 7.5-40, the cost of new water supplies is given as \$200 to \$400 per AF for the Sacramento region, and \$250-\$350 per AF for the San Joaquin. The report provides no basis for the magnitude of these numbers, or the regional differences in uncertainty or magnitude. Some values are particularly questionable. For example, the report estimates the cost of RO at \$200 - \$500 per AF. This contrasts with a recent Bay Area Regional Water Recycling Program estimate of \$2000 per AF for RO to meet potential TMDL regulations. While RO costs may vary, it appears more likely that the lower figure excluded some costs, such as the cost of brine disposal. If the data used were more adequately explained, this concern could be checked. Other numbers are merely out of date. For example, the model uses 350 TAF for external banking for the South Coast region (Page 7.5-48). This appears to include only the Semitropic agreement, and ignores the storage agreement between MWDSC and Arvin-Edison.

The LCPSIM uses a loss function based on willingness to pay, reported on page 7.5-48. These are either incorrect, or incorrectly described. Urban users typically pay \$700-\$1,000 per AF, yet the table states that they would be willing to pay only \$49 per AF to mitigate a 1 percent shortage. Since they regularly pay 2000 percent of this price for the last increment consumed, this would appear to be wrong. It may be that the table should refer to the willingness to pay in addition to the prevailing rate. If so, the discussion should be changed, and the calculations checked to ensure that the numbers are being used correctly. If not, the loss function should be carefully re-estimated to avoid this error.

Water Quality Program Plan

Page 1-11, Table 2 - The first topic in in this table should be low dissolved oxygen, rather than low dissolved solids. Also, the text on Page 4-4 suggests mercury should be checked in the table.

Page 2-1, Summary and Problem Statement – The first sentence is repeated and the last sentence has been dropped from the page.

Page 2-1, last para. 5 mg/L DO criteria cited needs a reference. Appendix D indicates that this criterion comes from the Central Valley Regional Water Quality Control Plan. However, it fails to cite the date of the Plan.

Page 2-8, Urban Waterways near Stockton - An Existing Activities section should be added and contain a discussion of the proposal that was recently approved for funding by the Ecosystem Roundtable.

Page 2-8 , CUWA supports CALFED's proposals for actions to produce continuous and significant improvement in water quality in the Sacramento-San Joaquin Delta. Reduction in the loads and impacts of drinking water parameters such as bromide, total organic carbon, pathogens, nutrients, salinity, and turbidity is essential to ensure that urban water agencies can continue to meet existing and future drinking water regulations.

Page 2-9, East Side Delta Tributaries. The document attributes low D.O. to high deposition of fine sediments from channel disturbance on the Mokelumne River and other activities. However, the processes affecting D.O. in the lower Mokelumne River have not been studied in depth to support definitive conclusions. EBMUD, in partnership with other agencies, is actively engaged in salmon habitat restoration efforts and data collection along the lower Mokelumne River. CALFED should strongly support and devote resources to the continuation and expansion of such efforts, and base its solution and priority actions on the results.

Page 3-1, Summary – Total dissolved solids (TDS) is a surrogate for salinity. There is no need to list both of them.

Page 3-2, first full paragraph – The description of the sources of pollutants in Delta waters should contain a statement that mass loading analyses have not been conducted to quantify the relative amounts of pollutants from each of these sources. This type of analysis needs to be completed in Stage 1A. The document acknowledges that seawater is a major source of bromide. The other potential sources are minor compared to seawater. This should be acknowledged in the first full paragraph on this page. Urban storm-water is also a source of nutrients.

Page 3-3, Problem Statement – Drinking water agencies have as a primary goal protection of public health. Meeting drinking water standards is only one step towards that goal. The last sentence on the page should be changed to read, “...to meet drinking water regulations *and protect public health.*”

Page 3-5 and 6, Pathogens – We urge you to delete the comparison of Delta waters pathogen levels to national averages due to the extremely poor recovery rates obtained by DWR in their monitoring program. - There is a discussion of California utilities converting to ozone and the potential for membrane filtration to provide an alternative. This paragraph needs to contain a discussion of the disadvantages of ozone (bromate formation) and the fact that membrane filtration is currently feasible at water treatment plants that are much smaller than most of the plants treating Delta water. In addition, the discussion on treatment processes should also include emerging technologies such as ultraviolet irradiation and chlorine dioxide. These alternatives have certain advantages over chlorination and ozonation but their ability to be implemented for large scale drinking water treatment plants such as MWD’s 760MGD Jensen Treatment Plant has yet to be proven.

Page 3-6, Disinfection By-Products – EPA promulgated (not proposed) the Stage 1 D/DBP Rule in December, 1998. The lower DBP limits will be in effect in December, 2001.

Page 3-7, Disinfection By-Products last paragraph – “Acute impacts in pregnant women” needs to be further explained. Is this the reference to the DHS study that showed increased spontaneous abortion rates?

Page 3-11, Table at top of page – Under agricultural drains add “release drainage during ebb flows” as a potential action. Under treated wastewater effluents add encourage tertiary treatment for new discharges in the Delta.

Page 3-12 to 3-18 – This section contains a description of priority actions, information needed, and existing activities. It is difficult to distinguish between the priority actions and the information needed. There does not seem to be a direct correspondence between the priority actions described in this section and the Stage 1A or Stage 1 actions described in Section 12. Is CALFED committing to conducting the studies to gather the information needed or simply identifying the information needs? Do those studies become CALFED priority actions?. These comments apply to all of the other sections in this chapter in which priority actions are discussed.

Page 3-14, Reduce wastewater and storm water sources of drinking water constituents of concern - In addition to participating in the NPDES permitting process, CALFED and stakeholders need to develop a comprehensive watershed protection program to minimize impacts of increasing wastewater discharge into the Sacramento-San Joaquin Valley. Measures such as TMDLs should be implemented to assure continuous water quality improvements. The list of agencies involved should also include Counties and their Planning Departments. This will avoid cases where local Planning Departments approve the initial construction of new developments prior to completion and approval of a reasonably foreseeable long term waste discharge plan by the Regional Water Quality Control Board. CALFED did not include this action on the Stage 1 or Stage 1A lists. We recommend that it be included on both lists because this is an issue that is currently being addressed by the Regional Board.

Page 3-14, Evaluate treatment plant operational and technological needs - This section should be broadened to include developing technologies as alternatives to the current advanced treatment processes. Some promising water treatment processes are ultraviolet radiation and chlorine dioxide inactivation.

Page 3-14, Identify problems and solutions to urban runoff – This action is not included on the Stage 1 or Stage 1A lists and we recommend that it be included on both. It is really incorporated into the previously described action, *“Reduce wastewater and storm water sources of drinking water constituents of concern.”*

Page 3-14, Reduce the loading of TDS to the Sacramento and San Joaquin Rivers and to the Delta - The salinity and selenium sections of the Water Quality Program Plan only appear to address TDS loading in the San Joaquin River but not the TDS loading on the Sacramento River and Delta.

Page 3-15, Evaluation of drinking water treatment options - The CALFED Program will have important impacts on utilities’ plans for future treatment options and utilities’ planning in turn will affect the development of the CALFED Water Quality Program. A close working relationship, in particular through adequate representation of utilities on the Delta Drinking Water Council, needs to be in place to assure efficient processes for both utilities’ and CALFED planning.

Page 3-15 and 3-16, Evaluation of approaches to reduce organic carbon loadings to the Delta from agriculture - This item should also mention the Byron Tract drainage management program. CCWD is also involved in ongoing efforts to use models to estimate water quality at intakes.

Page 3-17 and 3-18 – The MWQI Program is not undertaking all of the activities listed in this section of Existing Activities. MWQI, with funding provided by the urban State Water Contractors, sponsored the jar test study on agricultural drainage treatment. All of the other activities listed on these two pages should be included in the comprehensive study of agricultural drainage management that CUWA has urged CALFED to include in the Stage 1A Actions list.

Page 3-17, Rerouting agricultural drainage - The phrase “*CCWD management believes*” should be changed to “*For example, CALFED and other stakeholders believe that rerouting or otherwise managing the agricultural drainage on Veale Tract and Byron Tract will*” The Brown and Caldwell study indicated that 700,000 acre-feet of drainage is discharged throughout the Delta at hundreds of locations. That study did not state that all of this drainage “*discharges annually near Rock Slough.*” Agricultural drainage discharged to the Delta has different effects on the water quality at Rock Slough depending upon the location of the individual sources of drainage.

Page 3-18, Storage in detention ponds with release during high flows - The statement “*Reducing agricultural drainage at times when pumping rates are low also could improve export water quality.*” should be changed to “*when pumping rates are high*”

Page 3-19, Livestock grazing – Dairies and other confined animal feeding operations should be included as potential sources of pathogens, TOC, nutrients, and TDS. Better enforcement of existing regulations is needed to control these sources of pollutants. CALFED could provide financial assistance for BMPs and support the Regional Board’s efforts to bring more dairies into compliance.

Page 3-21, Priority Actions - The water quality in the NBA watershed is considered poorest for TOC and turbidity. In addition, a potential alternative intake location is the Tehama-Colusa Canal, not the Colusa-Tehama Canal.

Page 3-23, Priority Actions - None of the Priority Actions identified for the South Bay Aqueduct are included on the Stage 1A or Stage 1 Actions lists. Since the SBA has limited storage capacity, there is little potential to moderate large shifts in Delta water quality. It is important to conduct a watershed management project to identify potential methods of improving water quality along the SBA during Stage 1A.

Page 3-25, Evaluate impacts of new wastewater discharges to the Delta - A better example of the impacts of population expansion and increased wastewater discharges is the new Mountain House Community east of the Tracy Pumping Plant.

Page 3-26, CCWD Intakes - This discussion should be expanded to include relocation or other forms of management and reduction of the impacts of agricultural drainage from Byron Tract in the vicinity of CCWD’s drinking water intake on Old River near the Highway 4 crossing. This section should also be updated because the proposal CCWD submitted to the SWRCB was not funded.

Page 3-27, Tracy Intake - The CVP's Tracy Pumping Plant will also receive wastewater discharge from the new Mountain House Community, currently under development, just east of the Tracy Pumping Plant.

Page 3-34, Figures 4 and 5 - The figures showing Alternatives 1, 2, and 3 are not meaningful unless compared with the No-Action case at the same level of development. All three alternatives may significantly degrade water quality relative to existing or future no project conditions at CCWD's intake.

Page 3-39, Figure 7 - The causative relationships between bromide concentration in DMC and at Vernalis would be better illustrated using a time history plot rather than the monthly averages (averaged over seven years).

Pages 3-40 to 3-42 - The discussion of Figure 9 makes it clear that the four sets of bromide concentration shown are not representative. A time history of the four data sets would allow a better interpretation of the data and should be included in the final PEIS/EIR. The statistics shown in Figure 9 only indicate that the statistics themselves are misleading.

Pages 3-43 to 3-45 - The discussion of Figure 11 should clarify whether these are historical or simulated data and identify the data source.

Page 3-44, Figure 10 - The sources of bromide need to be better defined. It would appear from Figure 10 that the San Joaquin River return flow contributes an insignificant bromide load. This graph supports CUWA's position that no further money be spent on investigating non-seawater sources of bromide.

Page 3-47, Recommendations - It is unclear as to how these recommendations relate to the Stage 1 and Stage 1A Actions. CALFED has conducted a good analysis of the sources of bromide and concluded that seawater is the major source. It would seem that a couple of additional quick analyses may complete this analysis so that it will no longer show up as a \$1million study in the Stage 1A Action list (Table 3-1 of the Implementation Plan). First the methyl bromide issue could be resolved by assuming that all 400,000 lbs of bromide reaches the San Joaquin River (a very conservative assumption). Using annual flow data for the San Joaquin River CALFED could determine the maximum concentration of bromide that would be found in the river at Vernalis due to methyl bromide and compare it to the actual concentrations. A more realistic approach would be to obtain data from the manufacturer of methyl bromide on its fate in the environment and determine what percentage of the bromide might reach the San Joaquin River. Another simple analysis to resolve the issue of bromide in San Luis Reservoir would be to obtain evaporation rates for the reservoir and calculate the amount of bromide remaining in the reservoir as a result of evaporation. This could be compared to the increased concentration in San Luis relative to the source waters to determine if evaporation accounts for the majority of the increase. The analysis of bromide in San Luis Reservoir did not take into account the bromide concentrations in the water that was used to fill the reservoir. It could be that the bromide concentrations in the water when the reservoir was filled were higher than the bromide concentrations in the California Aqueduct and the DMC in 1994. It is unclear if the non-seawater sources of bromide study is included in the Stage 1A actions because it is listed in the Implementation Plan but it is not included in the list of Stage 1A actions in the Water Quality

Program Plan. CUWA does not support spending \$1 million to study non-seawater sources of bromide.

Page 7-5, Lower San Joaquin River Basin Salt Balance - The discussion should point out that the period between 1985 and 1994 is dominated by dry hydrology and therefore might not be representative. The period consists of seven critical, one dry, and two wet year-types based on the San Joaquin 60-20-20 Hydrology classification. In dry years, salt imported to the San Joaquin Valley via the DMC is higher due to high Delta salinity, and the salt export via Vernalis could be lower due to low San Joaquin flow. Based on flow and electrical conductivity data available on the California Data Exchange Center website, the salt export at Vernalis in the wet years 1993, 1995, 1996, 1997, 1998 are 882,000, 1,372,000, 1,150,000, 1,228,000, 1,780,000 tons, respectively. By contrast, salt export in the dry year 1994 was 567,000 tons. Days with missing data are not included in calculating these loads and the salt concentration in mg/L is assumed to be 0.62 times the electrical conductivity in mS/cm. A longer data record with a better balance of the different hydrological year-types might lead to a qualitatively different conclusion about the salt balance.

Page 7-8, Source Control and Drainage Reduction - The reason for assuming a limit of 25% of irrigated land needs to be explained.

Page 12-17, Table 3 – As stated above, there are discrepancies between this table and Table 3.1 in the Implementation Plan. These discrepancies need to be resolved so that stakeholders understand what CALFED is recommending for Stage 1A actions.

Page C-1, Seventh item under Drinking Water - To “*continue use of temporary barriers to reduce sea water intrusion at CCFB*” is a hypothetical proposition at best. Barriers in the south Delta increase salinity at CCFB. The hypothesis that reducing salinity in DMC export would reduce San Joaquin inflow salinity, to the extent that a net decrease in CCFB salinity can be achieved is unsupported. The proposed action also leads to redirected impacts (higher salinity) to CCWD. This action needs to be supported by adequate analysis and documentation or be deleted.

Ecosystem Restoration Program Plan

Page 35 #2: Flow sufficient to inundate the floodplain may not have been an annual event during extended drought conditions.

Page 38, #12: High flows may also force the salmon fry out of the river systems before they are ready to migrate as smolts. While providing rearing habitat in the Delta for salmon fry is good, any flows to create floodplain habitat will need to be evaluated to insure that the natural component of the salmon outmigration that would leave the river system as smolts is not affected.

Page B-2: During incoming tides, the juvenile salmon may reverse their direction of travel so they are moving in the same direction as the tidal current. The downstream movement of the

juvenile salmon can be rapid once the tide changes direction to an ebb tide but there is generally not a continuous downstream movement.

In addition, the movement of chinook salmon fry through or within the Delta is not known. Salmon fry may represent a major component of the juvenile salmon production leaving a river system.

Figure B-5 – ECOLOGICAL RESPONSE VARIABLES: Temperature regulation and coldwater pool management need to be added in the box under “Reservoir” at the top of the page.

Page C-9: The value referred to for fraction of fall-run chinook salmon caught seems excessive for San Joaquin natural fall-run chinook salmon.

Figure C-5. Conceptual Model A and Conceptual Model B: In the diagram next to catch, add non-catch mortality. Below rearing fry, add an option for fry entering other tributaries for rearing as smolts. This mechanism may be occurring when Mokelumne origin salmon migrate as fry and then rear to smolts in the Cosumnes River.

Page C-13: Since restoration goals are set on a river by river system basis, does this mean that harvest levels should be set on the same basis and not aggregated under a Central Valley management unit?

Page D-37: There needs to be some discussion about the benefits of a constant fractional marking program in addition to a 100% tagging program.

A. Eastside Delta Tributaries Ecological Management Zone

Page 359: The value of 11,000 for 1983 is different from the value for 1983 from the existing DFG data base of 15,900 fish. However, this high CDFG value is an estimate based on a regression from a hatchery return of 4,573 fish, a value well outside the range of the database used to develop the regression. Since 1990 CDFG and EBMUD have made empirical counts at the Mokelumne River Fish Installation (for hatchery returns) and for total escapement past Woodbridge Dam (video monitoring and trapping), respectively. A regression developed from these data, and based on escapement of as high as 10,175 fish (1997) would encompass the 1983 hatchery return value, producing a corrected regressed escapement estimate for 1983 of 7,548 fish (Miyamoto, AFS Cal-Neva Proceedings, 1998). This number is *within* the regression based on empirical counts and therefore a more valid estimate.

The more current run sizes are 10,175 in 1997 and 7,198 in 1998. It is important to show that there is a trend of increasing salmon escapement in the lower Mokelumne River rather than just a one-time event in 1996.

Page 359: Add to the end of the last sentence: for reservoir coldwater pool management. The “FERC Settlement Agreement” should be changed to Joint Settlement Agreement among EBMUD, CDFG and USFWS in 1998. FERC did not issue an order adopting the Joint Settlement Agreement until 1998. The Plan was implemented voluntarily by EBMUD in 1993 and the Plan was further improved by implementing components of the FERC Settlement Agreement in 1996.

Page 360: The fish pass through the fish ladder via a fish bypass conduit that conveys fish away from the screened entrance to the diversion canal. The fish bypass empties into the fish ladder. Compared to the Sacramento and American rivers, the Mokelumne River is remarkably unarmored. There are a few places where armoring occurs, but the presence of salmon redds in the same places year after year suggests a lack of armoring. The amount of gravel may be limiting. Gravel has been added to the river every year since 1990 except for 1995 when high river flows prevented gravel placement. Under a three-year program EBMUD will place as much as 6,000 cubic yards of clean washed gravel at several locations.

Page 363: Traditional steelhead upstream migrations do not occur in late winter or spring. The peak movement of steelhead in the lower Mokelumne River would be in December or January. Flood releases made from Camanche Dam in December and January have not been accompanied by increased steelhead escapement in the lower Mokelumne River.

A Master of Science Thesis by Michelle Workman did not find any significant correlations between the downstream migration of juvenile fall chinook salmon in the lower Mokelumne River and a number of environmental variables including changes in stream flow.

Page 367: Change the words “plan species” to “plant species.”

Page 370: A Joint Settlement Agreement was signed in 1998 by EBMUD, CDFG and USFWS that provides significantly improved fish flows for the Mokelumne River (including higher minimum flows below Camanche Dam) and gainsharing for additional flows between EBMUD and the environment.

Page 372: Lower gravel enhancement sites were established below Highway 88 and at Mackville Road on the lower Mokelumne River in 1997 and 1998. These sites are approximately 5 miles downstream of Camanche Dam.

American River Basin Ecological Management Zone

Page 321, Table 8: Average Flow Targets for 10-Day Pulse (cfs) on the American River, Coordinated with Flows from Shasta and Oroville Reservoirs.

Month	Water-Year Type			Exceptions
	Wet	Above and Below Normal	Dry	
March	6,000 0 – 7,000	4,000 – 5,000	3,000 – 3,500	Only when inflows are sufficient (based on storage and inflows)
Late April or early May	7,000 0 – 8,000	5,000 – 6,000	3,500 – 4,000	Only when inflows are sufficient

In the lower American River, most of the juvenile salmon leave the river system as fry in early winter. It is unclear what the benefit will be in providing late winter and spring flows to provide attraction for downstream migrating fall-run chinook..

Water Use Efficiency Program Plan

Page 6-10 Water Use Efficiency Program Plan - The document incorrectly refers to the San Diego indirect potable reuse project as being in progress. This project has been canceled due to reactions to public acceptance issues of allowing recycled water into the potable supply.

Page. P-12, first paragraph, “Developing Assurances and Incentives for Water Recycling”. The blanket statement concerning recycled water project difficulties is overly broad. Many projects have been found to be competitive in capital costs and do not require overcoming significant permitting or institutional impediments. However, at the projected levels of recycling posed by CALFED it is certain that many difficult implementation issues will arise. The BARWRP Recycling Master Plan has found recycling to have some advantages over other traditional water supply projects in areas of timing and environmental benefits.

Page. P-12: Determining Which Entity Will Certify Urban Water Management Plans. Whichever entity certifies the plans, the mechanism should be an objective checklist limited to verifying that specific elements required by the law have been included in a given plan. CALFED should not propose or establish another certification system like that contemplated for urban water conservation programs.

Page P-14 to P-16, Conservation Potential: CALFED needs to revisit assumptions on baseline and No-Action conservation levels, and their assumption that full BMP compliance will be achieved without CALFED assistance. The general consensus within the CUWCC and other agencies is that No Action target levels should be reduced; only partial BMP compliance will likely be achieved without assistance. CALFED “cost-effective” conservation BMPs at the local level may be overstated based on today’s research.

Page 1-7 to 1-10, Tables 1-1 to 1-4: CALFED needs to explain what will be the process to further refine the data presented among various stakeholders. Data presented does not include sufficient footnoting, references or listing of assumptions.

Page 2-6: CUWA supports CALFED’s decision to exclude environmental and other non-market costs and benefits as a basis for challenging a certification decision on urban compliance with the BMPs, until the CUWCC develops agreed-to methods for quantifying them.

Page 2-7: CUWA supports CALFED’s recommendation that a different body than the CUWCC hear appeals on certification decisions.

Page 5-48, Paragraph 2: CALFED should justify their basis for assuming that existing trends will continue to generate significant conservation savings beyond the urban BMPs without CALFED involvement.

Page 6-2: There is no analysis of water quality and ecosystem benefits resulting from water recycling. These should be analyzed and quantified to the extent possible, as such benefits may

be critical in determining the appropriate level of state/federal support for recycling efforts in the San Joaquin and Sacramento valleys.

Page 6-3, Last paragraph: CALFED needs to complete an analysis of ecosystem restoration and water quality objectives, and the potential for Central Valley improvements through water recycling to determine maximum potential benefit.

Implementation Plan

Implementation Plan – Governance

Assurances and Institutional Arrangements - This section of the document is lacking in detail and such detail, as noted in the document, must be available by the ROD. We request that the following assurances be added to the list in the Final document.

1. **Regulatory Assurances**, including:

- a. **Programmatic conservation strategy** which shall consider all sources of take.
- b. Programmatic conservation strategy which will provide **incidental take authorizations** sufficient to allow take of all covered species resulting from the operations of the system, within the terms of the negotiated Operating Agreement (as described below). That is, when the terms of the Operating Agreement have been negotiated, the effects of incidental take caused by operations will have been analyzed and authorized, and no further action or mitigation will be required other than those measures which have been included in the Operating Agreement.
- c. Agreement that there will be **no “Outliers”**, meaning the CALFED program will take into account all existing issues and proposed projects outside the CALFED program that may affect the water supply, fisheries and water quality objectives of the CALFED program, including, but not limited to, CVPIA and Trinity River Restoration.
- d. Agreement that the SWRCB should support and encourage pending settlements in the Bay-Delta water rights proceeding because they are critical to advancing stakeholder support for the CALFED Bay-Delta program. The voluntary resolution of disputes through negotiated settlements in the allocation of responsibility for meeting Delta outflow requirements is an important element of the CALFED process.

2. **Operating Assurances**, set forth in an **Operating Agreement** must include:

- a. **Extension of the Accord** through Stage 1 with all associated authorizations.

- b. Agreement that **base authorized operating conditions** are defined by the Accord at the time of the 1994 Principles Agreement, taking into account actions to be taken under the CVPIA, and any additional environmental flows and/or operating criteria will be sought through resources acquired in the Environmental Water Account.
 - c. Agreement that neither incidental take authorizations nor operating conditions, set forth in the Operating Agreement will be modified during the terms of the Operating Agreement.
 - d. Agreement for **flexible operations** to allow pumps to operate at full capacity at those times and those circumstances described in the Operating Agreement. The design of the CALFED monitoring program must provide necessary **real time data** to support flexible operations.
 - e. Agreement to establish and implement an Environmental Water Account (EWA) that is coupled with an overall operations agreement to achieve “no surprises” regulatory assurances for water users against further erosion of supplies. The EWA must be sufficiently equipped with assets from the ISI such as new storage, purchase options, efficiency measures, and the ability to apply flexible operations, and must not be operated in a way that degrades water quality. The EWA must allow for sharing of the gains for environmental water quality and water supply purposes commensurate with sources of funding.
3. **Overarching Program Implementation Assurances**, set forth in an **Implementation Agreement** must include:
- a. **Parity in terms and duration** between financing and assurances.
 - b. **All Substage 1A projects will be agreed to and fully described** at the time of the ROD, so that all parties may be fully apprised of and be able to fully evaluate whether the CALFED program is implementing aspects of all program elements in a balanced and fair manner.
 - c. The Implementation Agreement entered into at the time of the ROD must assure a process which **guarantees that Substages 1B and 1C will also move forward in a balanced and staged fashion** such that progress must be demonstrated by public progress reports subject to review and comment by stakeholders.
 - d. Agreement regarding **Governance** structure that provides for broad-based and meaningful input from stakeholders.
 - e. Agreement regarding financing Stage 1.
 - f. Agreement that all contractual and statutory protections afforded to the Delta and the areas of origin will be met and that water supply and quality would not be

negatively impacted by CALFED actions. All existing contractual statutory protections, and commitments to area of origin and in-Delta water users must be addressed during the development of implementation and operational agreements and assurances for new CALFED actions and facilities.

Implementation Plan- Finance

Page 91, Executive Summary, Financing Mechanisms, and Page 145, Funding Sources and Finance Mechanisms, User Fees: Reference is made to a broad-based Bay-Delta system diversion fee, the basic concept being that this fee “...*would apply to all diverters, or all major diverters, of water from tributaries that flow into the Delta, as well as exporters of Delta water.*” This fee should apply to more than just **major** diverters/exporters. CALFED should look beyond the list of about 60 major diverters/exporters identified by the SWRCB when it proposed such a fee as part of draft Decision 1630. CALFED should try to bring in as many diverters/exporters as possible, and use current numbers to determine the point at which it is not cost-effective administratively to apply a diversion fee to “smaller” diverters. (Also see Page 151.) From the standpoint of fairness and equity, anyone who diverts or exports water from the Bay-Delta system contributes to its problems and should, therefore, help contribute to solving those problems.

Page 99, paragraph 3. We agree that some CALFED actions are not amenable to traditional cost allocation procedures. However, it does not logically follow that CALFED should not attempt to measure benefits for those portions of the Program with a large percentage of public benefits unless CALFED intends to fund those portions of the Program solely with state and federal funds. CALFED must make a serious effort to quantify the benefits of its actions to each beneficiary group.

Page 100, paragraph 3. The draft Plan suggests that benefits should be measured as the difference between benefits that would occur with the Program compared to the benefits that would occur without the Program. Given the range of uncertainty about future conditions assumed in the draft PEIS/EIR, how does CALFED intend to apply this principle?

Page 100, paragraph 4. We agree that the benefits of water quality actions can sometimes be measured by avoided treatment costs and health impacts. Unfortunately, that is not true of the water quality actions proposed in Stage 1, most of which will benefit the ecosystem.

Page 101, paragraph 2. The paragraph should be amended to read: “... storage would be developed and constructed, together with aggressive implementation of cost-effective water conservation, recycling”

Page 102, beneficiaries. The beneficiaries of new storage facilities could also include hydropower operators and the commercial fishing industry.

Page 104, cost-sharing options. The appropriate vehicle for funding the portion of storage dedicated to M&I and agricultural uses (net of flood control, recreation, environmental and other storage benefits) will depend, in part, on who benefits from the storage (SWP users, CVP users,

or other water users). CALFED should not seek to build additional storage as a component of specific user systems and charge them for it unless they are the beneficiaries of the storage.

Page 105, first paragraph. M&I, agricultural and hydropower users should not be required to pay O&M costs for storage or portions of storage dedicated to other uses, such as ecosystem restoration.

Page 105, third issue. Given the ability of the CALFED agencies and other stakeholders to challenge or block the storage projects, would the proposed “share the risk” policy be equitable?

Page 105, fourth issue. The technical analysis in the draft PEIS/EIR does not support the establishment of a water user fee for ecosystem storage.

Page 108, last paragraph. The Plan raises as an issue the fact that some conveyance improvements that benefit export water quality may not be beneficial to fish populations. A similar relationship exists between ecosystem restoration actions and water quality diverted from the Delta, i.e., some restoration actions may not be beneficial for water quality. This issue should appear as an issue for discussion under the section on ecosystem funding.

Page 109, issue 3. CALFED needs to provide the rationale for assessing a charge only on Delta exporters for conveyance improvements that provide general ecosystem improvements.

Page 115: CALFED should be aware that water saved as a result of water use efficiency measures that is then dedicated to the environment may result in a reduction of supply for downstream diverters. It would be inappropriate, at the least, for water user fees to be used for this purpose.

Page 122. It appears that many, if not most, of the studies proposed under the WQP are related to water quality for the ecosystem. 100% public funding should thus be provided as a financing option.

Page 130: There may be water quality and supply reliability benefits from watershed management programs, but these will be virtually impossible to quantify and separate from other contributing factors. Therefore, watershed management projects should be publicly funded.

Page 145, et seq.: CUWA agrees that “user fees should be targeted to particular groups of beneficiaries” where only subsets of users would benefit. However, this is followed by a plan to identify “which elements of program elements have the broadest public benefits and merit potential funding by a broad-based diversion fee” (p. 154), which seems to contradict the “beneficiaries pay” principle. By its own definition, private beneficiaries would include “public” water districts (p. 93); therefore, it is unclear how can using a broad-based diversion fee for public benefits be justified.

Page 150, Broad-based Bay-Delta System Diversion Fee: Discussion of Options for Fees (p. 150) lists five “Major fees” (a through e) and two “Other specialized fees” (f and g). Options for Diversion Fees and Potential Revenues (p. 151), states “*In this draft, only (a), fees on acre-feet*

delivered, is discussed.” CALFED should provide information on other specialized fees in the Final documents.

Implementation Plan - Stage I Implementation

The following projects should be included in Stage 1A of the CALFED Program

A. Multipurpose Projects

1. South Delta improvements: Obtain necessary permits and implement South Delta Improvement Program, including:

a. **8500 cfs Operation at Banks:** In the short-term, complete NEPA/CEQA process and other necessary permitting, design and construction, and begin 8500 cfs operation at Banks Pumping Plant.

b. **Joint Point of Diversion**

c. **10,300 cfs Operation at Banks:** Complete NEPA/CEQA processes, design, and begin construction of South Delta improvements, to allow operation at 10,300 cfs during Stage 1; with water gains benefiting both the water users and the environment and shared commensurate with funding contributed.

d. **Assess impacts** on Mokelumne fisheries and identify mitigation measures.

e. Assess and implement appropriate and cost effective fish mortality mitigation measures.

2. Surface Storage: Continue planning, site selection, and environmental documentation for new off-stream surface storage and expansion of existing surface storage.

3. Hood Test Screens and Diversion Facility: Complete feasibility studies and begin environmental documentation. Studies must examine potential impacts on Mokelumne fishery and identify mitigation measures.

4. South of Delta Improvements: Evaluate and conduct feasibility studies on potential south of Delta improvements such as the O'Neill bypass and San Luis Reservoir bypass facilities to improve water quality in the California Aqueduct and the San Felipe Project.

5. In-Delta Channel Improvements: Plan, design and implement in-Delta channel modifications that protect all in-Delta uses and maximize multiple benefits for habitat, flood conveyance, water quality, and water supply.

6. Isolated Facility: Begin planning and feasibility studies, including the collection and analysis of water quality and biological data to determine the need, sizing, and timing of the isolated Facility. The purpose of the studies is to support the ecosystem and water quality decision process to be defined at the time of the ROD.

7. **Financial Incentives** for agricultural and urban water management and recycling projects that exceed local cost-effectiveness criteria.
8. **South-of-Delta Groundwater Storage:** Begin construction of at least one new south-of-Delta groundwater storage project.
9. **East of Delta Groundwater Recharge and Banking Project:** Implement a groundwater conjunctive use project in area of the Mokelumne, Calaveras, Stanislaus and Farmington basins.
10. **Funding for Groundwater Basin Modeling,** planning and monitoring in the Central Valley watershed, including implementation of groundwater pilot projects.
11. **Development of an Environmental Water Account** for multiple purpose supply and water quality improvement purposes.

B. Water Quality Improvement Projects

1. **Drinking Water Protection Policy:** Provide financial and policy level support for the development of a Drinking Water Protection Policy by the Central Valley Regional Water Quality Control Board, working with the State Water Resources Control Board, Department of Health Services, San Francisco Bay Regional Water Quality Control Board, and U.S. Environmental Protection Agency. This policy will include the development of water quality objectives for TOC, TDS, bromide and pathogens, and the development of a management plan to meet the objectives. Development of this policy is important for achieving drinking water quality improvement, and should include the establishment of a coordinated strategy to reduce the water quality impacts of wastewater discharges and other sources of drinking water contamination. In addition, establishing water quality objectives is key to the future development of TMDLs for drinking water parameters of concern.
1. **Salinity Reduction:** Implement salinity reduction work, including operational changes, modifications to in-delta conveyance, and San Joaquin River salinity management.
2. **Veale Tract and Byron Tract Drainage Management Programs:** Complete the Veale Tract and Byron Tract agricultural drainage management programs.
3. **TOC Reduction:** Conduct comprehensive evaluation and pilot programs for reducing TOC from Delta islands drainage.
4. **Recreational Impacts on Drinking Water:** Investigate the strategies to address water quality impacts of recreation on SWP reservoirs.
5. **Barker Slough Watershed Management Project:** Commit to implement the Barker Slough Watershed Management Program in Stage 1 if on-going studies indicate drinking water quality can be improved through watershed management.

6. South Bay Aqueduct Watershed Management Project: Conduct a watershed management project to identify potential methods of improving water quality along the South Bay Aqueduct.

C. Actions to Implement the Drinking Water Quality Improvement Strategy

1. Sources and Loadings of Drinking Water Contaminants: Conduct a comprehensive evaluation of the sources and loadings of TOC, TDS, bromide, pathogens, and nutrients to the Bay-Delta system, with the eventual goal of implementing total maximum daily load (TMDL) limits for these contaminants.

2. Health Effects Studies – Identify needed public health effects studies to more specifically identify the potential health effects of bromide related DBPs and provide financial and technical support.

3. Water Treatment Research – Identify needed studies on brominated and chlorinated disinfection by-product operational controls at water treatment plants and provide financial and technical support to implement incremental improvements as warranted in subsequent sub-stages of Stage 1. Provide financial and technical support to investigate advanced treatment technologies for the removal of TDS, bromide, TOC, and pathogens in urban water supplies.

4. Alternative Sources of High Quality Water – Investigate alternative sources of and means of providing high quality water supply for urban users of Delta water and identify legal, water rights, and physical constraints to alternatives.

5. Operational Modifications – Evaluate and implement changes in upstream and Delta operations to continuously improve water quality delivered to urban water agencies and improve the quality of water in the Bay-Delta for all beneficial uses without impacting CALFED's goal of continuous improvement in water supply reliability.

6. Comprehensive Monitoring, Assessment, and Research Program (CMARP) – Establish an agreed upon water quality baseline for the Delta and ensure that sufficient monitoring and assessment procedures are in place to monitor drinking water quality parameters at major urban water supply intakes and determine areas where additional improvement in water quality is required.

7. Review of Data: Commit to detailed review of drinking water quality and fisheries data, Safe Drinking Water Act regulatory requirements, and effectiveness of all water quality actions during Stage 1 to provide the information needed to support the decision process on the need for an isolated facility or other facilities.

Page 1, Action 7. The ERP flow targets have assigned priorities with some of them requiring further evaluation before implementation. The ERP should state which streamflow targets are scheduled for full implementation by the end of Stage 1.

Page 22, Item 3, North Delta Improvements: The evaluation of the effects of the screened diversion at Hood needs to include an assessment of the potential increased risks of entrainment

at the export pumps for juvenile chinook and steelhead from the Mokelumne River. This evaluation is especially critical given the location of where the Mokelumne River enters the Delta and major conveyance channels leading to the export pumps.

An additional Stage 1 Action should include a surface baffle at the entrance to Little Connection Slough or other suitable location to divert Mokelumne origin salmon toward the western Delta and away from the conveyance channels leading toward the export pumps.

Representative 1996-1999 Scientific Literature Related to Delta Fisheries and the Aquatic Ecosystem.
Arnold, J. 1998. Fish Salvage at the SWP and CVP Facilities. IEP Newsletter, 11 (2).
Bailey, R. 1997. Evaluation of San Joaquin River Flow Parameters and Central Valley Project and State Water Project Export Levels During the Spring and Their Relationship to Two Measures of Chinook Salmon Abundance. Prepared of Metropolitan Water district of Southern California. Lincoln, Ca. April.
Baxter, Randall. 1998. Splittail and Longfin Smelt, Winter 1998. IEP Newsletter, 11 (2):39.
Bay-Delta Modeling Forum. 1998. Temperature Modeling Workshop. Interagency Ecological Program. Sacramento. October 22.
Bennett William A; Peter B. Moyle. Fish Declines in the Estuary. Where Have All the Fishes Gone? 1996. Interactive Factors Producing Fish Declines in the Sacramento-San Joaquin Estuary. San Francisco Bay: The Ecosystem. J.T. Hollibaugh, Ed.
Bennett, Bill, University of California, Davis, Bodega Marine Lab and Liz Howard, USBR. El Ninos and the Decline of Striped Bass. IEP Newsletter, Vol. 10, No. 4 - Autumn 1997. Pp 7
Brandes, Pat and Mark Pierce, USFWS. 1997 Salmon Smolt Survival Studies in the South Delta. IEP Newsletter Vol. 11, No. 1 - Winter 1998. Pp. 29.
California Department of Fish and Game. 1996. Status of Actions to Restore Central Valley Spring-Run Chinook Salmon – A Special Report to the Fish and Game Commission. Inland Fisheries Division. Sacramento, CA. December.
California Department of Fish and Game. 1998. Lower American River [Salmon] Emigration Survey October 1995-September 1996. Environmental Services Division. Sacramento. September.
California Department of Fish and Game. 1999. Central Valley Anadromous Fish-Habitat Evaluations: October 1997 through September 1998. Prepared for the U.S. Fish and Wildlife Service. Sacramento. May.
California Department of Fish and Game. 1997. Inland Fisheries Division. Central Valley Spring-Run Chinook Salmon. A Status Report to the Fish and Game Commission, January-June, 1997.
California Department of Fish and Game. 1998. Battle Creek Fisheries Studies. Task 1: Instream Flow Study.
California Department of Water Resources. 1996. Entrainment of Eggs and larvae at the State Water Project and Central Valley Project Intakes in the Sacramento-San Joaquin Delta [annual reports]. Sacramento, CA.
California Dept. Water Resources. 1996. Water Quality Conditions in the Sacramento-San Joaquin Delta, 1970-1993. Report to the State Water Resources Control Board in Accordance with Water Right Decision 1485, Order 4(f). Environmental Services Office, Sacramento. December.
Carl Mesick Consultants. 1998. The Effects of San Joaquin River Flows and the Combined Export Rates of the Central Valley Project and the State Water Project During October on the Number of Adult San Joaquin Chinook Salmon that Stray into East-Side Rivers and the Sacramento Basin. Prepared for Stockton East Water District and Herum, et al. El Dorado, CA. September.
Cech, Joseph J. Jr. 1998. Swimming Behavior of Splittail in Multi-Vector Flow Regimes: Applications for Fish Screens. Manuscript.
Cohen, Andrew N., 1998. Ships' Ballast Water and the Introduction of Exotic Organisms into the San Francisco Estuary. Current Status of the Problem and Options for Management. San Francisco Estuary Institute, Richmond, CA. October
Cramer, Steven P. and Douglas B. Demko. 1996. Draft. The Status of Late-Fall and Spring Chinook Salmon in the Sacramento River Basin in Regards to the Endangered Species Act.
Foss, Stephen F. and Lee W. Miller, DFG. 1998. American Shad. IEP Newsletter 11(2) p. 44.
Foss, Stephen F. and Lee W. Miller, DFG. 1998. Young Striped Bass. IEP Newsletter 11(2) p. 43.
Gingras, Marty. 1997. Department of Fish and Game. Mark/Recapture Experiments at Clifton Court Forebay to Estimate Pre-Screening Loss to Juvenile Fishes: 1976-1993. Technical Report 55.
Gingras, Marty; and Maureen McGee. 1997. A telemetry study of striped bass emigration from Clifton Court Forebay: implications for predator enumeration and control. Interagency Ecological Study Program for the Sacramento-San Joaquin Estuary.
Grimaldo, Bonnie Ross, DWR and Dale Sweetnam, DFG. 1998. Preliminary Results on the Age and Growth of Delta Smelt (<i>Hypomesus transpacificus</i>) from District Areas of the Estuary Using Octoltith Microstructure Analysis. IEP Newsletter 11 (1) p. 25.
Grime, J.P. 1997. Biodiversity and Ecosystem Function: The Debate Deepens. Science, v. 277.

Representative 1996-1999 Scientific Literature Related to Delta Fisheries and the Aquatic Ecosystem.
Herbold, Bruce. 1997. Adaptive Management of Emigrating San Joaquin Salmon Smolts. IEP Newsletter v. 10 (4) p. 24.
Hobbs, R. J. and H. A. Mooney. 1998. Broadening the extinction debate: population deletions and additions in California and Australia. Conservation Biology. 12(2):271-283.
Hollibaugh, J.T. [ed.]. 1996. San Francisco Bay: The ecosystem. Further investigations into the natural history of San Francisco Bay and delta with reference to the influence of man. American Association for the Advancement of Science.
Hymanson, Zachary, DWR, and Charles Simenstad, University of Washington. 1997. Predicting Evolution of Shallow-Water Habitat Ecological Function from Restoration of Managed Delta Islands. IEP Newsletter v. 10 (3) p. 10.
Ingram, L. B., J. C. Ingle, and M.E. Conrad. 1996. A 2000 yr record of Sacramento-San Joaquin river inflow to San Francisco Bay estuary, California. Geology. 24(4):331-334.
Johnson, Jason L. and William M. Kier. 1998. A Preliminary Assessment of the Salmon Habitat Potential of Butte Creek, A Tributary of the Sacramento River, Between the Butte Head Dam and Centerville Diversion Dam, Butte County, California.
Jung, Marvin, and Lori Weisser. 1999. A Study of Factors Determining Short-term Water Quality Changes in Flooded Peat Soil Environments [Draft report]. Sacramento, CA. March 24.
Kier Associates. 1999. Battle Creek Salmon and Steelhead Restoration Plan. Prepared for the Battle Creek Working Group. Sausalito, CA. January.
Kimmerer, W. (ed). 1998. Report of the 1994 Entrapment Zone Study. Technical Report 56. Interagency Ecological Program for the San Francisco Bay/Delta Estuary. California Department of Water Resources et al., Sacramento, CA. January.
Kimmerer, W. J., J. R. Burau, and W. A. Bennett. 1998. Tidally oriented vertical migration and position maintenance of zooplankton in a temperate estuary. Limnol. Oceanogr., 43(7):1697-1709.
Kimmerer, Wim, 1997. Flow Effects and Density Dependence in Striped Bass. IEP Newsletter v. 10 (4) p 11.
Kimmerer, Wim, 1998. SFSU. Zooplankton of San Francisco Bay: Report of a Pilot Monitoring Program. IEP Newsletter v. 11 (2) p. 19.
Kohlhorst, David, DFG. 1998. White Sturgeon. IEP Newsletter v. 11 (2) p. 45
Lawson, Peter W. 1993. Cycles in Ocean Productivity, Trends in Habitat Quality, and the Restoration of Salmon Runs in Oregon. Fisheries 18(8):6-10.
Lehman, P. W. 1998. Phytoplankton Biomass and Species Composition in 1997. IEP Newsletter v. 11 (2) p. 18.
Lehman, P.W. 1998. Phytoplankton Species Composition, Size Structure, and Biomass and Their Possible Effect on Copepod Food Availability in the Low Salinity Zone of the San Francisco Bay/Delta Estuary. Technical Report 62. California Department of Water Resources, Environmental Services Office, Sacramento. August.
Lott, Jenni. 1998. Bay-Delta Division. Feeding Habits of Juvenile and Adult Delta Smelt from the Sacramento-San Joaquin River Estuary. IEP Newsletter v 11 (1) p. 14.
Mesick, Carl. 1998. The Effects of San Joaquin River Flows and the Combined Export Rates of the Central Valley Project and the State Water Project During October on the Number of Adult San Joaquin Chinook Salmon that Stray into East-Side Rivers and the Sacramento Basin. Prepared for Stockton East Water District, Stockton, CA. September.
Mills, Terry J., Paul D. Ward, Tim Farley. 1996. Status of Actions to Restore Central Valley Spring-Run Chinook Salmon.
Moyle, P.B. and T. Light. 1996. Biological invasion of fresh water: empirical rules and assembly theory. Biological Conservation (Barking); v. 78 (1-2) p. 149-161.
Moyle, P.B. and T. Light. 1996. Fish Invasions in California: Do Abiotic Factors Determine Success? Ecology. 77(6), p. 1666-1670.
Myers, K.W., Kerim Y. Aydin, Robert V. Walker, Susan Fowler, and Michael L. Dahlberg. 1996. Known Ocean Ranges of Stocks of Pacific Salmon and Steelhead as Shown by Tagging Experiments, 1956-1995. Univ. Washington, Fisheries Research Institute, Seattle, WA; and US National Marine Fisheries Service, Juneau, AK. September.
National Marine Fisheries Service. 1998. NMFS Finalizes National Standards Guidelines for Fishery Conservation and Management. SFA Update. April/May.
National Marine Fisheries Service. 1998. Status Review of Chinook Salmon from Washington, Idaho, Oregon,

Representative 1996-1999 Scientific Literature Related to Delta Fisheries and the Aquatic Ecosystem.
and California. Seattle, WA. February.
National Marine Fisheries Service. 1996. Factors for Decline. A Supplement to the Notice of Determination for West Coast Steelhead Under the Endangered Species Act.
Natural Heritage Institute. 1998. An Environmentally Optimal Alternative for the Bay-Delta, A Response to the CALFED Program. San Francisco, California. October.
Newman, Ken and John Rice. 1997. Statistical Model for Survival of Chinook Salmon Smolts Outmigrating through the Lower Sacramento-San Joaquin System.
Nobriga, Matt, DWR. 1998. Evidence of Food Limitation in Larval Delta Smelt. IEP Newsletter v 11 (1) p. 20.
Orsi, James, DFG. 1998. Neomysis/Zooplankton Abundance. IEP Newsletter v. 11 (2) p. 24.
Pacific Fishery Management Council. 1997. Pacific Coast Salmon Plan Fishery Management Plan for Commercial and Recreational Salmon Fisheries Off the Coasts of Washington, Oregon and California as Revised in 1996 and Implemented in 1997. Portland, OR. July.
Pacific Fishery Management Council. 1998. Review of 1997 Ocean Salmon Fisheries. Portland, OR. February.
Pacific Fishery Management Council. 1999. Review of 1998 Ocean Salmon Fisheries. Portland, OR. February.
Rhoads, Pete, Bill Alevizon, Rod Fujita, Charles Hanson, Phyllis Fox, Robert Nuzum, Karen Levy, Randy Bailey, and Jud Monroe. 1996. The Scientific Basis for Habitat Rehabilitation in Aquatic Ecosystems. A Review of the Scientific Literature related to the Principles and Practice of Habitat Rehabilitation.
Rhoads, Pete. 1996. Habitat Restoration in Aquatic Ecosystems. A Review of the Scientific Literature related to the Principles and Practice of Habitat Restoration.
Schoellhamer, David H., and Jon R. Burau. 1998. Summary of Findings About Circulation and the Estuarine Turbidity Maximum in Suisun Bay, California. US Geological Survey, Sacramento, CA. August.
Sommer, T. R. Baxter, and B. Herbold. 1997. Resilience of Splittail in the Sacramento-San Joaquin Estuary. Trans. American Fisheries Soc. 126:961-976.
Sommer, T.R., R. Baxter, and B. Herbold. 1997. Splittail Revisited. IEP Newsletter Vol. 10 No. 3 - p. 6
Swanson, C., R.C. Mager, S.I. Doroshov, and J.J. Cech. 1996. Use of salts, anesthetics, and polymers to minimize handling and transport mortality in delta smelt. Transactions of the American Fisheries Society (Bethesda); Vol. 125 No. 2 pp. 326-329.
Sweetnam, D.A. 1998. Delta Smelt Investigations. IEP Newsletter Vol. 11, No. 2 - p. 36.
The Bay Institute of San Francisco. 1998. From the Sierra to the Sea. The Ecological History of the San Francisco Bay-Delta Watershed. San Rafael, CA.
Thompson, Bruce, SFEI and Heather Peterson, DWR. Benthic Macrofaunal Assemblages of San Francisco Bay and Delta. IEP Newsletter, Vol. 11, No. 2 - Spring 1998. Pp. 26.
U. S. Bureau of Reclamation. 1997. Tracy Fish Collection Facility Studies, California, Volume 8. Evaluation of the Subsampling Procedure to Estimate Fish Salvage at the Tracy Fish Collection Facility, Tracy, CA. 1993-1996. Sacramento, CA. November.
U. S. Fish and Wildlife Service. 1998. Abundance and Survival of Juvenile Chinook Salmon in the Sacramento-San Joaquin Estuary - 1995 Annual Progress Report. Stockton, CA. August.
U. S. Fish and Wildlife Service. 1998. Comprehensive Assessment and Monitoring Program (CAMP) Annual Report 1995-1997. Central Valley Fish and Wildlife Restoration Program Office, Sacramento. August.
U.S. Department of the Interior. 1998. U.S. Geological Survey. Assemblages of Fishes and Their Associations with Environmental Variables, Lower San Joaquin River Drainage, California.
U.S. Fish and Wildlife Service (Moyle, B., R. Pine, L.R. Brown, C.H. Hanson, B. Nerbold, K.M. Lentz, L. Meng, J.J. Smith, D.A. Sweetnam, L. Winternitz.) 1996. Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes. U.S. Fish and Wildlife Services; 214 p.
U.S. Fish and Wildlife Service. 1997. Revised Draft Restoration Plan for the Anadromous Fish Restoration Program. A Plan to Increase Natural Production of Anadromous Fish in the Central Valley of California.
Viele, D. 1998. Winter Chinook CWT Recoveries 1991-94 Brood Years. National Marine Fisheries Service. September.
Young, P.S. and J.J. Cech. 1996. Environmental tolerances and requirements of splittail. Transactions of the American Fisheries Society 125: 664-678.



May 20, 1999

Mr. Lester Snow
Executive Director
CALFED
1416 Ninth Street, Suite 1155
Sacramento, CA

Subject: Proposed Source Water Quality Milestones for the CALFED Bay-Delta Program

Dear Mr. ~~Snow~~ *Lester*:

CALFED has committed to continuous improvement in source water quality for Delta drinking water supplies so that water agencies will be able to meet current and future regulatory requirements and protect public health. Although CALFED set long-term targets at 3.0 mg/L for total organic carbon (TOC) and 50 ug/L for bromide, there was recognition in the Revised Phase II report that interim milestones are needed to measure continuous improvement in water quality during Stage 1 implementation. CALFED committed to "work with stakeholders prior to the Record of Decision to develop agreed upon measurable milestones to be used as indicators of continuous improvement in water quality during Stage 1." We believe a dual approach will be needed to measure the effectiveness of the Stage 1 water quality actions and to assess the impacts on water quality of other CALFED actions. One approach could consist of development of the milestones and comparison of water quality conditions at the export/diversion locations to the milestones. The second approach could consist of an evaluation of actions taken. For example, has a management plan for salinity in the Sacramento and San Joaquin basins been developed and implemented? Both approaches will be needed to measure the success of the CALFED program in improving drinking water quality in Stage 1. This will provide needed information for future decisions on the CALFED Program.

CUWA has developed recommended milestones for bromide and TOC for consideration by CALFED and the stakeholders participating in CALFED's Water Quality Technical Group. While we have focused on milestones for public health protection, it is also essential to develop water quality milestones for salinity to ensure continuous improvement in salinity levels and sufficient water quality to support local water management programs. CUWA is currently undertaking an effort to evaluate the cost implications and water resource management implications of source water salinity levels, and will develop proposed source water quality milestones for salinity for CALFED consideration.

CUWA has considered possible milestones and recommends the adoption of the following source water quality milestones for bromide and TOC:

Proposed Source Water Quality Milestones for the CALFED Program

Safe Drinking Water Act Regulation	Promulgation/ Effective Date	Source Water Quality Milestones at the Effective Date *
Stage 1 D/DBP Rule IESWTR	December 1998/ December 2001	Bromide < 300 µg/L TOC < 4.0 mg/L (Values are quarterly averages.)
Stage 2 D/DBP Rule LT2ESWTR	May 2002/ 2005-2007	Bromide < 100-150 µg/L ** TOC < 3.5 mg/L ** (Values are quarterly averages.)
Stage 3 D/DBP Rule	December 2006/ 2009-2011	Bromide < 50 µg/L ** TOC < 3.0 mg/L ** (Values are monthly averages.)

* Assumes compliance with existing and proposed drinking water regulations using current best available technology, which is enhanced coagulation or ozone at pH 6.5.

** An equivalent level of public health protection may be achieved using a cost-effective combination of alternative source waters, source control and treatment.

We recommend that these proposed source water quality milestones apply in all source waters. If blending opportunities are not available, the milestones would apply at the drinking water intakes that deliver Delta water supplies to urban water agencies (e.g., H.O. Banks Pumping Plant, Tracy Pumping Plant, San Felipe intake on San Luis Reservoir, North Bay Aqueduct intake, and CCWD's Rock Slough and Los Vaqueros intakes). If higher quality sources are available to blend with Delta water, the milestones would apply at the location where supplies are blended. The milestones represent targets for source water quality improvement, assuming compliance with existing and proposed drinking water regulations using current best available technology, which is enhanced coagulation or ozone disinfection at pH 6.5. Alternatively, an equivalent level of public health protection may be met by utilizing a cost-effective combination of alternative source waters, source control and treatment technologies. Public health protection would be assessed by a comparison of treated water quality supplied to the consumer.

Urban water agencies using Delta water supplies may adopt difference approaches for meeting Safe Drinking Water Act requirements in the near term, including upgrading treatment facilities to include more advanced water treatment technology (e.g., ozone disinfection, enhanced coagulation), blending programs, water exchanges and storage. As a result, specific source water

needs for protecting public health in the near term may be different for different urban water agencies.

Basis of Recommended Milestones

The recommended source water quality milestones for bromide and TOC are based on technical evaluations contained in the Bay-Delta Water Quality Evaluation Draft Final Report prepared by CUWA's Expert Panel. Source water quality characteristics for Delta water supplies, which would allow water agencies implementing defined treatment technologies to comply with near term and long term regulatory scenarios were identified. The proposed milestones are supported by the need to protect public health and reduce health risks associated with exposure to disinfection by-products (DBPs). The milestones represent our best assessment of future drinking water regulatory requirements addressing DBPs and microbial pathogens. Because the milestones are also based on recently promulgated Safe Drinking Water Act requirements, they are defensible to other stakeholder groups. It is recognized that the drinking water regulations and treatment assumptions that these milestones are based on may change over time. Therefore, consistent with the CALFED adaptive management approach, it will be appropriate to reevaluate and adjust the milestones as the CALFED Program moves forward. The attached Table 1 provides more detail on the assumptions for the development of the milestone values and time frames.

The time periods for the bromide and TOC milestones are not fixed, but rather reflect the likely schedule of rule promulgation and effective dates for DBP rules over the next twelve years. This is important because urban water agencies must plan their strategies for compliance with future drinking water regulations and require significant lead-time to implement strategies for compliance, such as installation of advanced water treatment technology.

It should be noted that the proposed milestones for the time period 2005-2007 could change depending on requirements for *Cryptosporidium* inactivation and/or on the MCL for bromate in the Stage 2 D/DBP Rule. Higher MCLs for bromate (e.g., 10 µg/L) provide some relief for source water bromide concentrations, while *Cryptosporidium* inactivation requirements place emphasis on lowering allowable source water bromide levels. Further, potential regulation of individual DBP species (e.g., bromodichloromethane) will focus source water quality needs more closely on bromide, particularly in those cases where chlorination disinfection strategies are used. Another factor that may affect source water quality requirements for bromide and TOC is a possible future scenario in which distribution system averaging for compliance with the trihalomethane standard is eliminated.

It will be important to meet the milestones most of the time. Although individual treatment plants may be able to tolerate occasional excursions above the milestones and still comply with drinking water standards, the ability to do so will vary among the many treatment plants treating Delta water. The averaging periods for the 2001 and 2005-2007 water quality milestones are defined as maximum quarterly averages. It may be necessary to define the milestones as maximum monthly averages if the Stage 2 D/DBP and LT2ESWTR regulations are more stringent than currently anticipated. The water quality milestones for 2009-2011 are defined as maximum monthly averages to reflect the possible future decision to regulate DBPs based on both acute and

chronic impacts, if findings of future health effects studies warrant such a decision. In CALFED's December 18, 1998 Revised Phase II Report, the averaging period for the bromide and TOC water quality targets is not defined. This is an important issue that will also need to be resolved by CALFED working with CUWA and other stakeholders in the near future.

The source water quality milestones are targets to aim for, and progress toward achieving the milestones will help define needed adjustments in the CALFED Program. A critical issue associated with establishing source water quality milestones is how to determine whether or not milestones have been achieved. Due to natural variation in hydrology, changes in Delta operations and the impacts of other CALFED activities, it will not be possible in the short-term to measure definitively whether or not the milestones have been achieved in source water. As a result, evaluation of progress toward achieving milestones will need to include a combination of qualitative and quantitative evaluation. In the short-term, measurement of progress in achieving milestones should include an assessment of whether or not commitments for implementing water quality actions have been executed, and an evaluation of the effectiveness and water quality improvement resulting from implementation of specific actions. In the long-term, an overall assessment of changes in source water quality will need to be completed to evaluate progress toward meeting source water quality milestones and targets for the CALFED Program. This will require the implementation of a comprehensive monitoring and assessment program focused on drinking water parameters of concern.

Actions Required to Achieve Continuous Water Quality Improvement

To ensure protection of public health and continuous water quality improvement, CALFED needs to identify and commit to the implementation of a set of Stage 1 actions (e.g., source control, operating rules, water exchanges, and storage/conveyance improvements) that are linked to the achievement of the milestones, before releasing the Final Programmatic EIS/EIR. CUWA has developed a detailed matrix of Stage 1 actions that will be provided to CALFED after it has been reviewed by the CUWA Board of Representatives. While water agencies have essentially been meeting the 2001 milestones in normal and wet years, achievement of these near term milestones will require implementation of a strategy to reduce significant excursions in TOC and bromide levels, especially during dry years. This strategy is primarily based on operational modifications for water quality improvement. Based upon what we know now, implementation of source control actions and operational modifications will not be sufficient to achieve the milestones for the 2005-2007 and 2009-2011 time periods. Achievement of these intermediate and long term milestones will require a cost-effective combination of actions, including source control, water quality exchanges, new facilities and cost-effective treatment technologies.

Next Steps

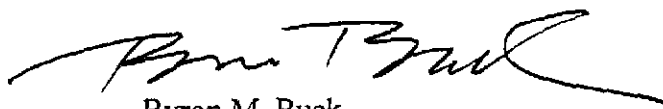
CUWA is prepared to work with CALFED and other stakeholders to further develop the Water Quality Program. We believe that the following work must be completed promptly:

- 1) Evaluate the cost-effectiveness, feasibility and timing of water quality improvement actions, and develop a detailed matrix of actions to achieve continuous water quality improvement.

- 2) Define existing water quality conditions for the purpose of evaluating progress in meeting source water quality milestones, and work to ensure that CMARP includes sufficient monitoring and assessment actions to evaluate progress in source water quality improvement.
- 3) Define a process for determining how milestones can be achieved by providing an "equivalent level of public health protection".
- 4) Define the process for the Delta Drinking Water Council, including Council representation and responsibilities, and determine the role of the Council in evaluating progress in achieving continuous water quality improvement.

CUWA welcomes the opportunity to discuss our proposed milestones with CALFED and the other stakeholders participating in the CALFED process. Please call me if you have any questions on our proposal.

Sincerely,



Byron M. Buck
Executive Director

cc: Steve Ritchie, CALFED
Judy Heath, CALFED
Paul Marshall, CALFED

Table 1. Proposed Source Water Quality Milestones for the CALFED Bay-Delta Program

Regulation	Promulgation / Effective Date	MCL or Treatment Requirement ¹	Treatment Assumptions	Source Water Quality Milestones at Effective Date ²
Stage 1 D/DBP Rule IESWTR	December 1998/ December 2001	TTHMs = 80 µg/L HAA5 = 60 µg/L Bromate = 10 µg/L TOC removal requirement for source water w/ TOC \geq 4.0 mg/L 2-log <i>Giardia</i> inactivation	Enhanced coagulation with chlorine/ chloramines or Ozone at pH 6.5	Bromide < 300 µg/L TOC < 4.0 mg/L (Values are quarterly averages)
Stage 2 D/DBP Rule LT2ESWTR	May 2002/ 2005 - 2007	TTHMs = 40 µg/L HAA5 = 30 µg/L Bromate = 5 µg/L 2-log <i>Giardia</i> inactivation	Ozone at pH 6.5	Bromide < 100-150 µg/L TOC < 3.5 mg/L (Values are quarterly averages)
Stage 3 D/DBP Rule (Based on very tentative EPA timeline for future rulemaking)	December 2006/ 2009 - 2011	TTHMs = 40 µg/L HAA5 = 30 µg/L Bromate = 5 µg/L 1-log <i>Cryptosporidium</i> inactivation	Ozone at pH 6.5	Bromide < 50 µg/L TOC < 3.0 mg/L (Values are monthly averages)

1. MCLs indicated for Stage 2 and Stage 3 D/DBP Rules represent the current best assessment of likely future regulations, and are not an endorsement of these values.
2. Milestones for source water quality improvement to meet existing and proposed MCLs using current best available technology. Milestones may be met by providing an equivalent level of public health protection using a cost-effective combination of alternative source waters, source control and treatment.

Abbreviations: D/DBP = Disinfectants and Disinfection By-products; IESWTR = Interim Enhanced Surface Water Treatment Rule; LT2ESWTR = Long Term 2 Enhanced Surface Water Treatment Rule; MCL = maximum contaminant level; TTHMs = total trihalomethanes; HAA5 = haloacetic acids; TOC = total organic carbon.